# Effective Communication between Nurses and Doctors: Barriers as Perceived by Nurses

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## Abstract

Effective communication among healthcare providers is the key driver for the success of the healthcare system. All the decisions related to patient care depend on effective communication among healthcare providers. Communication and teamwork are the backbones of the organization and helps to safeguard patients' safety. The study aimed to identify the contributing factors to the communication gap between doctors and nurses at selected private hospitals in Malaysia. The study used a qualitative method with an explorative and descriptive design to elicit the experience of 24 staff nurses from six private hospitals in Kuala Lumpur, Malaysia. A semi-structured interview was conducted to collect the data. The data were analysed using Colaizzi's method for thematic data analysis. The findings of the study suggested three categories as the factors to be responsible for the nurse-physician communication gap as perceived by nurses. The three categories are nurses work readiness; work environment and physician attributes. The respondents also suggested measures to overcome the communication barrier among nurses and physicians. In conclusion, a healthy nurse-physician communication is a vital factor in determining patient safety and quality of care.

**Keywords:** Communication; Qualitative research; Nurse-doctor communication; Barriers

## Introduction

The Joint Commission on Accreditation (JCA) set up the Patient Safety Goals (PSG) in 2003 to address the significant patient safety issues. In the year 2004, Malaysian Health Ministry established National the Patient Safety Goals (NPSG) to address patient safety concerns in Malaysian healthcare context. The NPSG goal number two is to "Improve Effective Communication." The standard requires the organization to develop, establish and implement a structured, standardized tool to improve communication skills among healthcare providers.

In healthcare organizations, the type of nurse-physician relationship and effectiveness of internal communication is one of the critical elements in deciding the quality of patient care. Moreover, effective communication helps to make collaborative decisions toward patient-centered care and promote positive outcomes [1]. Overall, the quality of patient care in healthcare organizations are highly related to effective communication among physicians and staff nurses. The types of nurse -physician relationship and also determines patient safety.

Schmalenberg and Kramer in their research article reported findings synthesized from six research articles on nurse-physician communication. This article published story of 20,000 staff nurses how they perceive, assess and develop high-quality relationships with physicians in hospitals to improve patient care. The study reported different types of nurse-physician relationships. The types of nurse-physician relationship as specified by the researchers include collegial relationships, collaborative relationships; student-teacher relationships; friendly stranger relationships and hostile relationships. The features of collegial relationship include equal trust; power and respect characterize a collegial relationship. Nurses and physicians refer to each other as peers in their relationship. Doctors are excellent and value the opinion of staff nurses. Then again, in the collaborative relationships, there is mutual trust among nurses and doctors. In the collaborative nurse-physician relationships is based on the shared trust; power; respect and cooperation are based on mutuality than equality. In collaborative relationships, nurse and physicians listened to one another plan of care but "doctors are still on top" as reported by the researchers, the best nurse-physician relationships are collegial relationships and collaborative relationships. Conversely, in the student teacher nurse-physician relationships, either the physician or the nurse can be a teacher. With residents or attending physicians who are dealing with comorbidities beyond their specialty, the nurses may take teaching or guiding role. In friendly stranger nurse-physician relationship there is a formal exchange of information and a neutral feeling tone of rapport. The worse nurse-physician relationships are hostile. Moreover, these type of relationship characterized by anger; verbal abuse real or implied threats and resignations [2].

However, throughout the entire history nurses and physicians have shared a complicated relationship [3]. The nurse-physician relationship is influenced by the power of authority, social status, gender and other perspectives. Tensions, conflicts as well as misunderstandings caused by the difference in opinions and interest among nurses and physicians upset the relationship. The lack of good relationship can interfere with effective interdisciplinary communication and collaboration. Improving the patient safety requires addressing the current hierarchical professional relationship inherent in healthcare delivery [4]. It is highly relevant that efforts are taken to determine the type of nurse-physician relationship in the local context.

The purpose of the study was to identify the existing type of nurse-physician relationship and factors contributing to the current nurse-

physician relationships as perceived by the Registered nurses in a private healthcare setting in Malaysia.

## Background of the study

The study has been conducted in six selected private hospitals in Malaysia. The six private hospitals are under one flagship of KPJ healthcare organization. The organization has a total of 27 hospitals across Malaysia, Indonesia, and Bangladesh. There are more than 500 specialists and more than 3000 nurses employed across the network of the KPJ Healthcare hospitals. All the hospitals are tertiary level specialist hospitals providing a wide range of specialist medical services across all medical disciplines. All the registered nurses possess Diploma in nursing qualification which is the basic nursing qualification for a Registered nurse in Malaysia. However, many of the Registered nurses also have Post basic qualification and are specialist nurses. They had been trained mainly by KPJ Healthcare University College (Nilai) or KPJ healthcare college (Johor Baharu). However, the organizations also have a good number of nurses trained in other School of Nursing across Malaysia. All the nurses working for the organization and providing direct patient care are locals. The specialist had been trained in varieties of settings across the globe.

From the researcher's personal experience as a nurse educator, there had been criticisms about nurse's inability to effectively communicate with the physicians. It is precisely relevant to junior nurses with minimal clinical experience. The poor communication results when nurses are unsure of patient details and lead to poor case reporting during the ward rounds as well as telephone case reporting skills. Sometimes there is poor comprehension of medical terminologies commonly used in the medical discipline among nurses especially the junior nurses with less than two years of experience in the same unit. The poor clinical communication affects respect, trust and confidence among nurses and physicians.

## Aim

This study aimed to identify the factors influencing communication gap between nurses & medical doctors working in selected private hospitals in Malaysia.

## Research questions

i. What are the factors affecting the communication gap between nurses and physicians as perceived by nurses?

ii. What strategies could be used to improve communication among nurse and physicians?

## Methods and Methodology

### Research design

The study used a qualitative method with descriptive, explorative design to explore factors affecting the nurse-physician relationship. A semi-structured interview was conducted with each of the respondents until saturation of data was obtained. All the interviews were tape recorded with the consent of the respondents.

### Study settings

The study settings involved six private hospitals in Malaysia. All the three hospitals are within Klang Valley in Kuala Lumpur and are under

the management of KPJ Healthcare organization. The staff nurses employed in general medical-surgical units were chosen as the study respondents.

### Sampling technique

A convenient sampling technique was used for data collection. After obtaining the permission from the Chief Nursing officers of the respective hospitals the researcher personally contacted the unit managers from the medical, surgical units. The unit manager referred the researcher to few staff nurses who were the potential respondents'. The researcher then personally contacted the prospective respondents and after initial self-introduction, the researcher briefly introduced the study topic and appointment was made for the interview. Interviews were conducted in a comfortable staff room within the ward of each of the respondents. Explanatory consent was obtained before commencement of the interview with each of the respondents.

The number of samples was decided based on data saturation. A total of 24 registered nurses were the respondents for the study.

### Inclusion criteria

The staff nurses who had been willing to give the explanatory consent were included as the respondents for the study.

### Exclusion criteria

The staff nurses who were not willing to participate and sign explanatory statement were excluded for the study.

### Data collection method

The study used semi-structured questions for data collection. The semi-structured interview was conducted in the hospital premises. Prior to the data collection, the researcher had obtained permission from the Chief Nursing Officer (CNO) of the respective hospitals. The CNO's referred the researcher to the unit managers of the medical-surgical units. With the permission and referral of the unit manager the researcher personally contacted the staff nurses and introduced self and an appointment was obtained to have the semi-structured interview. Before commencement of the interview the topic and purpose of the study was reinstated to the respondents and obtained the written consent using explanatory statement. Then, the researcher collected demographic data's followed by a semi-structured interview was conducted regarding communication gaps between nurses and doctors. All the interviews were tape recorded with consent of the respondents.

### Data analysis

The interviews were tape-recorded and verbatim were transcribed. The data analysis used manual qualitative analysis from the field notes and the verbatim. The transcript was read and reread independently by the researchers to obtain the themes related to the nurse-physician communication gap.

### Ethical clearance

This study has received the Ethical Clearance/approval from the Ethical Committee of KPJ Healthcare University College. An explanatory statement was given and consent was obtained from the participants before the data collection. The data in the tape recorder

was transferred to the laptop and was password protected to be accessible only to the research team. The transcribed verbatim was stored in a dedicated box to safeguard the confidentiality of the data.

## Results

### Factors contributing to communication gaps between nurses & doctors

From the qualitative data analysis using Colaizzi's method of qualitative data analysis, two categories with 12 themes emerged from the data (Tables 1 and 2). The three categories emerged from the data are: nurses work readiness; work environment and physician's attributes. Table 3 reports the categories and themes identified across the studies, along with example quotes from the respondents.

**Nurse's work readiness:** The preparedness of the staff nurses were one of the factors impacting the nurse-physician communication skills.

| 21-30 | 16 | 66 |
|-------|----|----|
| 31-40 | 3 | 13 |
| 41-50 | 3 | 13 |
| 51-60 | 2 | 8 |

**Table 1:** Age of the respondents (Staff nurses).

| Years of experience | Number | % |
|---------------------|--------|---|
| <1 year | 8 | 33 |
| 1-5 yr | 4 | 17 |
| 6-10 yr | 5 | 21 |
| >10 yr | 7 | 29 |

**Table 2:** Staff nurses years of clinical experience in nursing.

| Age in yrs. | Number (n) | % |
|-------------|------------|---|

| Categories | Themes | Examples |
|------------|--------|----------|
| Nurse's work readiness | Lack of knowledge in the specialty | "Sometimes we are unable to answer doctor's questions and the doctors scold us. So we are scared and next time we avoid those consultants' rounds. We expect them to teach us not scold us. We want to learn." |
| | Lack of competency of new graduate nurses | "At times we don't have skill in performing certain procedures". |
| | Time management | "We expect the consultants to understand our situation. We need to entertain patients, relatives and everyone around us verbally and over the phone. We are answerable to everyone. If something goes wrong, they get frustrated". |
| | Theoretical versus practical training | "For example procedure like dressing uses many solutions and materials. Each consultant has their preference too College only teach basic dressing procedure". |
| Work environment | Non –nursing job | "Insurance and billing take way lot of our time. Moreover, an admission itself has a lot of clerking job". |
| | Perception of being appreciated | "Even with all our sacrifices, nobody cares for us or our wellbeing. Sometimes we are sick. But because of staff shortage still, need to work." |
| | Staff shortage | "We need more care assistants. That can ease our burden." |
| Physicians attributes | Power of authority | "Some doctors are bossy. Do not want to listen to any reason from us". |
| | Personality traits of physicians | "One of the respondents exclaimed, "Some consultants are very loud, fast; some slow and soft." |
| | Mood variations | "Some consultant deal with us according to their stress and mood but not all consultants. Some are very nice." |
| | Handwriting | "Especially medication orders. We are worried about making mistakes." |

**Table 3:** Factor related to poor nurse-physician communication.

**Lack of knowledge in the speciality areas:** Sixty-three percent of the staff nurses felt that they need to improve their knowledge in the related discipline. Registered nurses stated that sometimes they do not understand what the consultants communicate using medical terminologies. The knowledge deficit is especially real for new graduate nurses in the early stage of the professional role. For example, the information related to details of the drugs like IV Immunoglobulin and certain medical terms like 'Kawasaki disease'. Some even may hesitate to attend rounds with the same physicians and try to avoid the physician subsequently. All the respondents mentioned that having adequate knowledge is the key to have effective communication at work.

**Competency of new graduate nurses:** Junior nurses with less than one year clinical experience as RN often perceived that they were treated differently by doctors compared to experienced nurses. Being ignored and not 'fitting in' were commonly reported experiences by the junior nurses. Twelve (50%) nurses stated that many specialists preferred to work with only experienced nurses. "Some consultants when we attend call ask name and if junior refuse to talk and ask for senior staff. It upsets us. We feel sad; why not me". We want to learn.

But they don't want to teach". Another respondent "Sometimes the consultants ask more detail about drug, I do not know. Then I avoid even go for rounds, or I attend along with senior until I know the expectation of the consultants".

**Theoretical versus practical training:** The student experience of theoretical learning with work placements differed significantly from working as an RN. Three (12%) of the staff nurses responded: "What we learn (the basic procedures) in college is performed differently in a hospital setting". "For example surgical dressing". In College they teach simple surgical dressing. But in the clinical they use a variety of dressing materials and solutions. Sometimes we don't know what the consultant prefers. Some consultants are very good. But few may get angry and shout at us. Moreover, different doctors do the identical procedure in a different style. All these cause a lot of confusion for us in the ward".

## Work environment

**Staff shortage:** Thirteen (54%) nurses retorted that shortage of staff nurses in one of the major issues. Nurses stated that they need to do a double shift when some of the staffs go on Medical leave. Adapting to double shift work was acknowledged as a difficult part of the nursing role. Tiredness associated with this lifestyle change had negative consequences for nurses and their patient's wellbeing and quality of care. It is very exhausting. Sometimes we need to sacrifice even our meal time to meet the patients' demands. The shortage of staff can affect standard of nursing care from the physician point of view.

**Non-nursing work:** One of the respondents answered: "We do a lot of non-nursing jobs like insurance clearance. If paperwork is delayed patients and doctor will blame us". Sometimes the patients get admitted in the morning and get discharged evening. The process of settling bill may take few hours the patients will demand immediate settlement and if not settled immediately both the respective consultant and the patients will get frustrated with us. They don't understand our situation" Even for admission; we need to do a lot of clerical work. By the time we could finish the paper works, next patient will be in a queue for admission. "The delay cause frustration and we will be the victims even though we are not handing billing"

**Time management of nurses:** Management of time and related stress also were indirect factors respondents perceived to be contributing to the quality of work and hence affects effective communication among nurses and physicians. Nine (38%) of the respondents stated "suddenly patient queue up admission, sending another patient to OT, answering call bell, attending doctors rounds and so on add stress. Sometimes we are not able to follow the doctors for rounds due to time constraints".

**Perception of being appreciated:** Respondents shared the hard work and sacrifices they make resulted in frustration when they felt their hard work was not appreciated by the physicians or the management of the organization. Sometimes we are too busy with ward work and unable to attend rounds. That may make consultant angry. They don't understand our situation. One of the respondent stated "Sometime we even sacrifice our time for meal breaks to care for patients especially when the workload is high due to staff shortage. But most of the times our hardships are not appreciated and may even get blamed for any unintended shortcomings".

## Attributes of physicians

**Personality traits of doctors:** "Some consultants are very strict. If I don't know something, they don't want us to follow them for rounds next time. We feel upset. Actually if we don't know something we expect them to teach us not scold us". Five (21%) of the staff nurses answered that they felt scared to talk with doctors because some of the doctors can be very "rough" and speak loudly. Each doctor has their ways of doing the procedures as well. It is challenging to understand the differences in doctor's practices. Some doctors order (treatment) verbally and if we ask for verification may become agitated. Sometimes we are unable to attend rounds and they may order new medication new medication order but not inform us or at times verbal order of medication not written in the medication record"

**Power of authority:** The attitudes and behaviour of the physician was an important factor decided the effectiveness on nurse-physician communication. Eight (33%) staff nurses answered that doctors show their power of authority on nurses. For example," sometimes doctors may order medicine that is not available in the ward stock. By the time we get it from pharmacy, they may become annoyed and raise their voice." Sometimes we felt we are looked down when we give suggestion do not want to listen; but some appreciate & accept".

**Mood difference of doctors:** Nine (38%) of the respondents stated that doctors interaction with the staff nurses differs based on their mood. "Sometimes the doctors may be upset with other units' staff or even patients." At one time Orthopaedic doctor prescribed steroid for pregnant mother and the obstetrician scolded us. Is it our mistake"? On the other hand, when they are in a good mood, they may also share a lot of information from conferences

**Handwriting of doctors:** Twelve (50%) nurses stated that sometimes doctor's handwriting not is legible. "Sometimes we don't understand the medication. If we ask for clarification, they retaliate saying ask your senior. Sometimes the seniors are also not sure of the written prescription. Then we check with the Pharmacy or ask the consultant again". However, with the introduction of the computerized information system and prescriptions, this issue is becoming insignificant.

## Suggestions to improve the nurse-physician communication

First and foremost nurses need to enhance knowledge of the related discipline and English language proficiency. Some respondents recommended that continuous professional development update to be taught by consultants, before consultants expect them to perform. Respondents hope that the consultants use opportunity like ward rounds for constructive teaching than scolding the nurses for their ignorance.

To help in adaptation process of newly hired staff respondents recommended having proper preceptor system. Most of the times preceptors are in a different shift that of the preceptee which doesn't help the preceptee. Newly hired staff also needs to learn preference of each consultant as quickly as possible. The respondents also acclaimed that the theory versus practical gap can be reduced with a more effective mentor-mentee system and hands-o n during student period. They suggested increasing the workforce to overcome work force shortage.

Nurses preferred not to be transferred to other wards, because of difficulty to adapt to the new ward. Doctors also must understand our situation when we are short of staff. Respondents recommended

having more care assistant's help to reduce non-nursing work of RN. They also recommended increasing RN work force to overcome RN shortage.

Doctors need to understand nurse's workload and react accordingly. More collaborative and communicative relationship than authoritarian relationship will help in better communication. Doctors need to write the order explicitly to carry out the order without any error. Talk nicely; teach more than complain or look down; unless an emergency, need to wait. Consultants need to understand nurse's situation of the ward and management of the organization need to appreciate the hard work of the 'unsung heroes'.

## Discussion

The nurse-physician relationship set the tone for unit culture and hence all measures need to be taken to develop a collegial and collaborative relationship. One of the most important determinants of patient safety and quality of care offered by the hospitals will depend upon the nurse-physician relationship of the individual units and unit culture.

One of the primary reasons for the poor nurse-physician communication gap is the knowledge deficit of nurses related to the specialty discipline. Few other studies also reported similar findings of [5-7]. One of the ways to address the lack of knowledge can be the use of structured transition programs [7,8].

. The diploma in nursing training only can prepare generalist nurses. Specialized training is needed as on the job training or continuing professional development to work confidently and safely in specialty clinical areas. Moreover, evaluation of knowledge competency should be done periodically to enhance their knowledge [9,10].

Physicians still adopt authoritarian attitudes and sometimes nurse's opinions are not heard. The findings of the study are in consistency with conclusions of Tabak et al. in which nurses were apprehensive about challenging the physicians' greater power & authority, feeling intimidated by the physicians' prestige & authority [11].

There is a social and professional view that nurses are the second rate to doctors. However, there is a vast difference between the two professions 3. Professional responsibility of nurses and doctors differs. However, both doctors and nurses need to function as a pair of gloves to achieve the optimum patient care goal. Doctor's focus to cure the patient where else nurses strives to provide holistic care for the patients. Both the professions are mutually exclusive and one can't successfully function without effective communication and collaboration with the other. Effective communication is the key to have a collaborative relationship with the healthcare providers.

Another factor is unfriendly personality traits of doctors and power of authority. The findings are similar in few studies [2-4]. Training on the importance of good nurse-physician interdisciplinary relationship can enhance relationship issues and to develop healthy unit culture [2].

Shortage of nurses had been adding stress to the working environment. The finding is consistent with other study findings [10,12,13].

Organisations need to have staff retention strategies to address the issue of the work force [10,13,14].

Illegible Doctors handwriting is one of the reasons for unintentional mistakes like medication errors [15-17]. Legible handwriting avoids misunderstanding reduce medical error and improve patient safety. However, with the implementation of the electronic health record, this issue should become obsolete in the future [18]. According to the research, when nurses personally hear the physician's plan of care, the potential for misunderstanding decreases, which in turn decreases the risk of error. Most of the time nurses feel too difficult to understand the doctor's handwriting. Sometimes nurses scared to clarify their doubts with doctors who can result in miscommunication and error in treatment [19].

Lack of understanding about the professional role of nurses is one area that research has identified and attention to improving collaborative relationships. Fortunately, more evidence is suggesting that the relationship between nurses and physicians is slowly becoming collegial or collaborative. Strategies can, therefore, can assist to improve relations between nurses and physicians [20].

However, traditional gender differences still exist. Men, who are more present in the medicinal field, prefer precise, quick, fact-based communication. Women, who are more present in the nursing field, prefer in-depth discussion style to understand the reasoning behind specific situations. This disparity, though improving as gender gaps decrease, may contribute to failures in communication [21].

Lancaster et al. in their study reported the need for excellent interdisciplinary communication; collaboration; education and training among nurses and physicians to support positive patient care outcomes 4.

The relationship between nurses and physicians has a long history, from a time when physicians were dominant over subservient nurses to now where there is more collaboration between the two professions. Currently, collaborative relationships between nurses and physicians are becoming the norm. A collaborative relationship is significant between nurses and doctors to maintain efficient care [2].

Nurses need appreciation for their contribution to the organization in achieving organization goal [22]. The unit culture and organizational culture need to monitor and pleasant working environment need to be encouraged to help job satisfaction of nurses and to enhance staff retention. Nurses in magnet hospitals report a higher quality of nurse-physician relationships. In magnet hospitals, 80% of the nurse-physician relationship is collegial and collaborative [2]. The study findings from registered nurses interview reported 12 areas of the nurse-physician relationship need improvement in the study settings. Multiple factors are contributing to the weak nurse-physician relationship in the study settings.

Work environments have many properties that may affect both physical and psychological well-being of the workers. Communication is a vital tool that health care professionals must use to elicit cooperation among individuals in the delivery of the healthcare services. It is an integral part of socialization & imperative in establishing healthy relationships in the health community. The factors related to poor communication between both the professionals can be addressed constructively to improve unit culture and organizational culture.

## Limitations of the Study

Fear of reprisals might have been real or perceived stressors for the respondents. In this study fear of retaliation had been addressed by taking every effort to maintain confidentiality and by making participants as comfortable as possible. No names or any identification

was included in any notes or reports. The data collected were kept in a database on a private –password protected laptop computer. Another limitation of the study is small sample size. The study involved different study settings and as such, it was difficult to get an appointment with staff nurses due to different shifts and responsibilities.

## Recommendations

The study can be conducted on a large sample to improve generalizations of study findings. The research also can be done using validated questionnaire survey on nurse-physician relationships to get more sizeable samples. A survey method may also avoid the fear of reprisal due to anonymity.

## Conclusion

In this study, the nurse-physician communication gap related factors identified are grouped into three categories namely, nurses work readiness; work environment and physician attributes. From the study findings, the researcher concludes that there is a need to impart knowledge about excellent communication skills among nurses and to identify strategies to enhance effective communication between doctors and nurses. The nurses and doctors have a vital role in creating a healthy communication and collaboration to enhance excellent patient outcomes.

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Research Article | Open Access

# A Follow up Study: New Nurse Graduates' Performance Evaluation in a Familiarized Nursing Environment when "Everything is New to Everyone"

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## Abstract

Performance evaluation is a continuous process in assessing the employee's contribution to the organization. The aim of performance evaluation is to achieve an equitable capacity of the employee's contribution to the workplace. In nursing, the evaluation performance encompasses cognitive skills; affective and psychomotor domains. The aim of this study was to evaluate the new nurse graduates' performance who had been trained within an environment of 'everything is new to everyone' in one of the teaching hospitals. A comparative descriptive study was conducted with 113 staff nurses as after 2 years of graduation. Work performance domains evaluated are; punctuality, physical appearance, attitude and commitment to work, service excellence, positive relationship, communication skills, and leadership. Results had shown 76.02% of the new nurse graduates' performance was excellent as evaluated by the 1st evaluators. Similar results were obtained from the overall evaluation of the 2nd evaluators. However, in some aspect of the overall evaluations, there was an inconsistency that contradicts the evaluation of both evaluators. A system will run accordingly if it is well communicated and had mutual consensus between evaluators who regard performance evaluation is rather a continuous process even in a difficult environment when everything is new to everyone.

**Keywords:** Performance evaluation; Performance evaluators; Nursing

## Introduction

Performance evaluations are a constructive process to acknowledge the performance of a non-probationary career employee. It provides employers an opportunity to assess their employees' contributions to the organization and it is essential for the development teamwork strategies

The main goals of a performance evaluation system are to provide an equitable measurement of an employee's contribution to the workforce [1,2].

A well-designed departmental performance evaluation system will allow a department to justify its functions and demonstrate the quality of care by providing concrete measures of performance, positive feedback on the well-done job, which motivates personal growth [3]. Performance evaluation requires integration of standards and competencies that recognize the achievement and milestones in an employee's professional growth [4].

In Nursing, clinical performance encompasses more than just cognitive skills. It also includes the levels of cumulative of affective and psychomotor domains, such as interests, attitudes, opinions, appreciations, values, and emotional sets and reflects a change in attitude or behaviour [5]. The assessment of performance should practice more than one indicator, regardless of the tool or indicator; it is essential that there is the adequate preparation of the individual being assessed [6]. It was suggested that the assessors or mentors should collaborate with the on-going process plan of performance

evaluation on the employee's work. However, to some managers' performance appraisal were developed as a general appraisal, which caused injustice to the staff being assessed [7].

Performance appraisal should consist of personal attributes such as job, knowledge, quality and quantity of work, teamwork, attendance, safety, problem solving, cost control and communications [8,9].

## Background

This study was conducted on the first batch of 113 new nurse graduates who were trained in one of teaching hospitals in Kuala Lumpur. Those new graduates underwent 3 years Diploma of Nursing Program where the environment of the school and the hospital where everything was new.

The new hospital employed 850 registered nurses from at least twelve institutions within the country and some were from the neighbouring countries and they were employed to assist in the management of patient care and management of the Nursing Service Department. Seven local nurse managers and 33 head nurses were employed to manage the nursing administration. A lot of efforts were put on maintaining optimum nursing input in the face of an acute shortage of staff of this hospital as the nursing staff from the neighbouring would leave the hospital after two years of service.

The above situation resulted in problems related to the delivery of patient care like duties carried out as a matter of routine. Patient's length of stay, compliance to treatment or early rehabilitation, for instance, were hardly ever on concerns. Indeed, that was the environment within which those new nurse graduates were being prepared and their performance as staff nurses or charge nurses is

being evaluated. During their training, those new nurse graduate nurses received close supervision by the 15 new nurse educators throughout the training, with a teacher student ratio of 1:9. The training institution believed that the first two years of training were the most critical time to develop the student's competencies to be a nurse. A model of patient care called, A patient care system was created and adapted specifically when students were in the clinical posting. The clinical setting is the most influential environment in the development of nursing skills, knowledge and professional socialization [10]. In the final year of their training, those new nurse graduates were placed in the special care areas. That was the year when those graduates would decide for their area of interest to be a staff nurse or charge nurse. Upon graduation they were given their preferred choice of specialty. Two years after the graduation, feedbacks were received on the new nurse graduates' performance. They were monitored by the head nurses using a checklist which was similar to the checklist in the patient care system. The head nurses were the front line managers who were all the time in contact with the new nurse graduates. The nurse managers as the second evaluators were seldom in contact with these new nurse graduates, as their main position, needs them to cover more areas within their own discipline. There is no single procedure for adequate assessment technique for assessing the staff's performance [11]. The main measurement used is either by direct observation or through verbal communication. Hence, the validity and reliability of the methods used are always questionable.

## Methods

### Study design

This study is comparative descriptive study, which compared the performance evaluation of new graduates done by the head nurse as a first evaluator and the nurse managers as the second evaluator.

### Sample size and sampling

The total population of the study which was 113 new graduates as sample of the study. A convenient sampling technique used and they were actually graduated nurses from the first batches of the Diploma of Nursing Program, Medical Faculty of Universiti Kebangsaan Malaysia, working in the new tertiary hospital. They have been placed in all the 33 newly opened wards to provide patients care.

### Data collection method

**Part one:** Sets of the questionnaire were given to all head nurses, to evaluate the performance of the new nurse graduates on the six aspects of work performance based on Performance Measurement (Table 1) [12].

Likert Scale was used to score the performance evaluation; 0=I don't know, 1=never, 2=seldom, 3=sometimes, 4=always. Each question scored from 0 to 4 points. The highest score will be 24 points. The higher the score the more positive would be the success of the respondent's performance.

**Part two:** Evaluation of the new nurse graduates' performance by the nurse managers as the second evaluator. Three sets of open-ended questionnaires used as the guideline interview.

Question 1: "How do you find their performance in the ward as a staff nurse or charge nurse?"

Question 2: "Would you identify 3 three of good things about these new nurse graduates and three areas where improvement could be seen?"

Question 3: "How would you believe that could be adjusted?"

| Domains | Number of Questions | Total Scoring |
|---|---|---|
| Punctuality | 3 | 12 |
| Physical appearance | 3 | 12 |
| Attitude and commitment to work | 6 | 24 |
| Service excellence | 10 | 40 |
| Positive relationship and Communication skills | 5 | 20 |
| Leadership | 6 | 24 |

**Table 1:** Six domains of work performance and scoring.

### Ethical consideration

Approval to conduct the study obtained from the Research Committee of the Teaching Hospital.

### Analysis

Statistical Package for Social Science (SPSS) version 12.0 and descriptive analysis were used to analyse the data.

## Results

| | Domains | Average Score | STDEV |
|---|---|---|---|
| 1 | Punctuality | 3.3 | 0.4864 |
| 2 | Physical appearance | 3.6 | 0.464 |
| 3 | Attitude Towards work | 3.23 | 0.5085 |
| 4 | Service Excellence | 3.36 | 0.535 |
| 5 | Relationship and communication | 3.09 | 0.5464 |

**Table 2:** The average score, and the standard deviation of work performance of the new nurse graduates.

Table 2 showed the average score, and the standard deviation of each domain scored by the head nurses. The highest average score was 3.6 on service excellence, followed by physical appearance (mean=3.36), punctuality (mean=3.30), attitude towards work (mean=3.23), and the lowest average scores were relationship and communication, and leadership, both received mean=3.09.

The overall achievement of the work performance scored in percentage, compare with the CGPA achieved as shown in Table 3. A total of 86 (76.10%) new nurse graduates had achieved Excellent performance, and 20 (17.69%) had achieved Very Good, 3 (2.64%) achieved Satisfactory and 4 (3.52%) scored Pass.

| Clinical Performance | N=113 | CGPA>3.00 | CGPA<3.00 | Total |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Excellence Score | 86 | 69 (61.06%) | 17(15.04%) | 76.10% |
| Very Good | 20 | 13 (11.50%) | 7 (6.19%) | 17. 69% |
| Satisfactory | 3 | 2 (1.76%) | 1 (0.88%) | 2.64% |
| Pass | 4 | 2 (1.76%) | 2 (1.76%) | 3.52% |
| TOTAL | 113 | 86 (76.02%) | 27(23.87%) | 100% |

**Table 3:** The overall scoring of work performance by the first evaluators against Cumulative Grade Point Average (CGPA).

The highest Work Performance scored by the 113 new nurse graduates was on the Service Excellence with the average score of 3.36., as shown in Table 4, through the following items.

The performance evaluation made by the 2nd evaluator in surgical units contradicted as shown in Table 5, with the evaluation made by the 1st evaluators of the same units. Their performance evaluation had shown that 20 (86.95%) of 23 new nurse graduates had performed well, but only three had performed 'good' as shown in Table 6. However, the evaluation made by the 2nd evaluator had affected the 23 new nurse graduates' performance.

| Service Excellence | Always | Sometimes | Seldom | Never | I don't know |
|---|---|---|---|---|---|
| Maintain clean, organized, safe patient care | 59 (52.2%) | 46 (40.70%) | 7 (6.2%) | 1 (0.90%) | - |
| Communicate appropriately every time When sees patients | 61 (54.0%) | 44 (38.90%) | 8 (7.1%) | - | |
| Touch her patients when providing care | 70 (61.9%) | 37 (32.70%) | 6 (5.3%) | - | |
| Smile at patients | 62 (54.9%) | 45 (39.8%) | 5 (4.4%) | 1 (0.90%) | |
| Responds promptly when called by patient. | 64 (56.6%) | 42 (37%) | 6 (5.30%) | 1 (0.90%) | |
| Pretend to be busy | 3 (2.70%) | 15 (13.30%) | 44(38.90%) | 44(38.90%) | |
| Practice patient safety strategies | 72 (63.7%) | 41 (36.3%) | - | - | |
| Recognized patients' physiological and psychological needs | 33 (29.2%) | 70 (61.9%) | 8 (7.1%) | 1 (0.9%) | 1 (0.90%) |
| Act promptly according to the patient's needs. | 54 (47.8%) | 52 (46.0%) | 6 (5.3%) | 1 (0.9%) | |
| Follow physician's orders correctly. | 78 (69%) | 31 (27.40%) | 3 (2.70%) | 1 (0.90%) | |

**Table 4:** Highest work performance's domain–service excellence.

| Units | Number of new nurse graduate | Statement made by the 2nd Evaluator |
|---|---|---|
| General OT, CSSD, Infection Control Unit | 8 | Overall performance is good, good attitude, good knowledge, and skills. |
| Ambulatory Services | 1 | Poor knowledge, poor attitude, poor in skills and poor communication. |
| Medical Units | 23 | More than 75% of the graduates had a good attitude, good knowledge, and skills. |
| Pediatrics, Oncology, Psychiatry, Special units | 12 | More than 75% of the graduates had a good attitude, good knowledge, and skills. |
| Surgery units | 23 | Only one graduate is 'good.' The rest were poor knowledge, poor in skills, poor attitude and poor in communication. |
| Obstetrics and Gynecology | 10 | Good attitude, poor in skills and poor knowledge. |
| Emergency Medicine | 10 | Good knowledge, better skills, and good attitude. |
| NICU | 13 | More than 75% of the graduates had a good attitude, good knowledge and skills. |
| ICU, CCU, CRW | 13 | Most graduates had a good attitude, good knowledge, and skills. |

**Table 5:** Responses from 2nd Evaluators: "How do you find the performance of the new nurse graduates in your units?".

## Discussion

The majority of the new nurse graduates, 86 (76.1%) had achieved excellent performance rated by the respective head nurses, 20 (17.69%) of them received 'very good' performance. If these two groups were to group together, the result would show as 106 (93.8%) of new nurse graduates out of 113 had performed very well as staff nurses or charge nurses after two years of graduation. The result had also confirmed with the Cumulative Grade Point Average (CGPA), 82 (72.56%) of 113

graduates who obtained CGPA of 3 and above, performed very well as a staff nurse and those graduates who received CGPA less than 3 during their training 24 (21.23%) also performed well after two years of graduation particularly the new nurse graduates who worked in special areas.

There could be many factors that contributed to the excellent performance among the new nurse graduates. One of the factors could be the training and working in the same place [13,14]. Those new nurse graduates received close supervision from the [15] new nurse educators throughout the 3 year program. Being the first batch, they were given special attention and everything was made new for them, A model of patient care called, A Patient care System was created specifically for them to manage in the patient care.

Understanding the new graduate nurses' experiences and their unmet needs during their first year of practice will enable nurse managers, educators and nurses to better support new graduate nurses' and promote confidence and competence to practice within their scope [16].

In the final year of the training, those new nurse graduates were given the freedom to choose the ward where they like to work after graduated. These factors could be the reason why more than 80% of the new nurse graduates functioned well over two years working at the hospital where they were trained. The job satisfaction and career retention of new nurses are related to perceptions of work environment factors that support their professional practice behaviours and high-quality patient care [17]. The majority of the new nurse graduates functioned well in areas such as operating theatre, emergency medicine and Neonatal Intensive Care Unit. They were consistently ranked high working in those areas.

| Number of new nurse graduates in Surgery units | Total Performance Score (24 points) | Grading Performance |
|---|---|---|
| | Performance Evaluation by 1st Evaluators (%) | |
| 1. | 2287.00 | Excellent |
| 2. | 22.87 | Excellent |
| 3. | 22.73 | Excellent |
| 4. | 2253.00 | Excellent |
| 5. | 22.37 | Excellent |
| 6. | 2220.00 | Excellent |
| 7. | 21.96 | Excellent |
| 8. | 2193.00 | Excellent |
| 9. | 21.6 | Excellent |
| 10. | 2160.00 | Excellent |
| 11. | 21.1 | Excellent |
| 12. | 2090.00 | Very good |
| 13. | 20.47 | Very good |
| 14. | 2030.00 | Very good |
| 15. | 20.3 | Very good |
| 16. | 20.13 | Very good |
| 17. | 19.63 | Very good |
| 18. | 19.5 | Very good |
| 19. | 17.84 | Very good |
| 20. | 17.36 | Very good |
| 21. | 14.34 | Good |
| 22. | 13.97 | Good |
| 23. | 13.9 | Good |

**Table 6:** Performance evaluation by 1st Evaluators in Surgical units.

However, for the 23 new nurse graduates who worked in the surgical units, received a pessimistic statement by the 2nd evaluator as; "only one could function well while the rest were poor in knowledge, poor in skills, poor in attitudes, and poor in communication." That statement contradicted with the assessment made by the 1st evaluators in all the surgical units. Their performance evaluation rated as 20 (86.95%) out of 23 graduates had performed well and three had performed 'good.' This single and isolated assessment made by the particular assessor resulted in the inconsistency between the first and the second evaluator of the same unit. The decision made could be caused by a feeling of incoherent. The limitations of performance appraisal and staff development, however, occur when management and staff do not understand the principles of performance appraisal and the need for consultation with staff about staff development activity [15]. Some managers tend to be liberal or strict in rating staff, some may fall into the trap of "recent performance effect." They generally will recall only recent favourable or unfavourable events rather than the whole years' worth activities [14]. On the other hand 2nd evaluator in the medical units said more than 75% of the new nurse graduates can function well referring to Table 5. The number of new nurse graduates in surgical units and medical units was distributed equally, 23 new nurse graduates to each discipline. It was not a possible mistake in giving the final say about the graduates' performance as only one was 'good'.

## Conclusion

In a new place, where the environment is "everything is new to everyone," the system will take time for it to work well. What's important are the approaches to make the system works, one approach will not be sufficient enough? In evaluating the staff performance, an observation only is not sufficient to decide the final say that someone is good or not good. Some managers tend to fall into the trap of "recent performance effect."

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# Journal of Nursing & Care

# Assessment of Sexual Abuse and Associated Factors Among Adolescents in High Schools, Nekemte Town, East Wollega Zone, Oromia Regional State, Western Ethiopia, 2017

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## Abstract

**Background:** Adolescent's sexual abuse is any interaction between adolescents and an adult (or another adolescent) in which the adolescents is used for the sexual stimulation of the perpetrator or an observer. Sexual abuse can include both touching and non-touching behaviors. Abusers often do not use physical force, but may use play, deception, threats, or other forms of coercion to engage adolescents and maintain their silence.

**Objective:** The objective of this study was to assess prevalence and associated factors of adolescents sexual abuse among adolescents in high school, Nekemte town, East Wollega Zone, Oromia Regional State, Ethiopia, 2017.

**Methods:** School based cross sectional study was conducted in high school of Nekemte town, using systematic random sampling technique from March 1st to 15th, 2017. Data was collected from 377 adolescent students using structured, pre tested and self-administered questionnaire. After data collection, data was cleared, coded, checked and entered in to computer software SPSS version 20.0. Univariate, analysis was performed for frequency and percentage. Binary logistic regression analysis was done to identify factors associated with sexual abuse and these factors were taken in to multivariate analysis with 95% confidence interval.

**Result:** Among study participants involved in the study 126 (33.4%) were sexually abused at least once in their life time and the remaining 251 (66.6%) were not sexually abused. Factors of sexual abuse associated significantly were grade attending, Fathers occupation and Mothers' education and occupation positively associated with sexual abuse of adolescents while drinking alcohol and had sexual intercourse associated inversely.

**Conclusion and recommendation:** The prevalence of sexual abuse is high and needs every one's attention on its reduction. Awareness creation for families and communities on sexual abuse and education for adolescents on short and long impact of sexual abuse is recommended.

**Abbreviations:** PMSP: Premarital Sexual Practice; RHY: Run away and Homeless Youth

## Introduction

Adolescents make up roughly 20% of the total world population and in developing countries; adolescents have an even higher demographic weight. In 1995, there were 914 million adolescents living in the developing world, that is, 85% of the total number. Their number is expected to reach 1.13 billion by the year 2025. With a lower fertility decline, Africa is expected to see its adolescent population grow much more rapidly than Asia and Latin America. Adolescence is accompanied by dramatic physical, cognitive, social, and emotional changes that present both opportunities and challenges for adolescents, families, health professionals, educators, and communities. Adolescence is a period of rapid growth: up 20% of final adult height and 50% of adult weight are attained, bone mass increases of 45% and dramatic bone remodeling occur [1-3].

Adolescents sexual abuse is any interaction between an adolescents and an adult (or another adolescent, youth) in which the adolescent is used for the sexual stimulation of the perpetrator or an observer. Sexual abuse can include both touching and non-touching behaviors. Touching behaviors may involve touching of the vagina, penis, breasts or buttocks, oral-genital contact, or sexual intercourse. Non-touching behaviors can include voyeurism (trying to look at an adolescent's naked body), exhibitionism, or exposing the adolescents to pornography. Abusers often do not use physical force, but may use play, deception, threats, or other forms of coercion to engage adolescents and maintain

their silence. Abusers frequently employ persuasive and manipulative tactics to keep the adolescents engaged. These tactics referred to as "grooming" may include buying gifts or arranging special activities, which can further confuse the victim [4].

Lifetime prevalence rates of adolescents' sexual abuse can be categorized in to three categories of sexual abuse: non-contact abuse, contact abuse and penetrating abuse. Penetrating abuse was related to more severe abuse characteristics, less frequent disclosure, more emotional and behavioral symptoms, weaker sense of coherence and poorer self-esteem when compared to non-abuse, non-contact or contact abuse [5].

According to immediate and long-term impacts of child sexual Abuse for future indicates a wide range of psychological and interpersonal problems are more prevalent among those who have been sexually abused than among individuals with no such experiences. Childhood, adolescent and youth sexual abuse is a major risk factor for a variety of problems, both in the short term and in later adult

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functioning such as emotional distress (anger, depression and anxiety), interpersonal difficulties and impaired sense of self. According to this research a relationship between sexual abuse and later substance abuse among adolescent and adult survivors was identified. Sexually abused female had ten times the likelihood of a drug addiction history and two times the likelihood of alcoholism relative to a group of non-abused female clients [6,7].

Another study conducted in West Gojjam zone, North West Ethiopia among in school adolescents of Shendi town on premarital sexual practice and its predictors found that 19% of adolescents had premarital sexual inter course with the mean age of first sexual intercourse 16.48 for males and 15.89 for females. Among factors associated with premarital sexual practice age greater than 20 years, living with friends or relatives, living alone and watching pornographic movies were significantly associated with premarital sexual practice (PMSP). Among study participants 71.2% of them reported as they consumed alcoholic drinks and only 1% reported "Khat" chewing at least once in their life time [8].

A study conducted in Nekemte high schools showed that 21.5% of the study participants had sexual intercourse before marriage and being male, ninth grade student and ever having sexual partner have significant positive association. While being less than 18 years of age was found to be protective factor for premarital sexual practice. In the same study, the mean age at first sexual intercourse for adolescents who engaged in the study was 16.2 years for male and 15.2 years for females [9].

### Statement of the problem

Throughout the world adolescent sexual abuse can occur in different magnitude and type. Although in most countries there has been little research conducted on the problem, available data suggest that in some countries nearly one in four women may experience sexual violence by an intimate partner and up to one-third of adolescent girls report their first sexual experience as being forced. Sexual violence has a profound impact on physical and mental health. As well as causing physical injury, it is associated with an increased risk of a range of sexual and reproductive health problems, with both immediate and long-term consequences. Its impact on mental health can be as serious as its physical impact, and may be equally long lasting [10].

Sexual abuse is reported by adolescent in the general population at significantly lower rates than is reported by adolescents reproductive health studies which is a round 1% to 3% compared to 21% to 42% in general population. Sexual abuse doubles the probability of being a suicide ideation or attempter. In separate analysis, sexual abuse was found to be a significant predictor of suicide ideation and attempts in a multiple regression model of analysis that included socio-demographic factors peer suicide ideation or attempts, street victimization and externalizing (behavior problem) and internalizing behavior (anxiety and depression) [11].

In India research conducted on sexual abuse indicated that one-third of the students had experienced at least one type of sexual abuse in the previous 12 months and 6% had been forced to have sex. Of one third adolescents who reported abuse, nearly half (47%) had experienced abuse more than once, and those who reported sexual abuse were far more likely to have also experienced other kinds of physical and verbal violence in the last 12 months prior to study [6].

According to research conducted on premarital sexual practice of adolescents and youth in Nekemte town and Shendi town indicated that 21.5% and 19% of adolescents and youth practiced premarital sex. The mean age of premarital sexual practice performed by adolescents and youth were (for male 16.2 & 16.48 years) and (for females 15.2 and 15.89 years) at Nekemte town and Shendi town respectively [8,9]. Both premarital sexual practice and mean age of the study participant clearly indicate that there is a problem of sexual abuse in the population mentioned towns. Premarital sex can be performed voluntarily or involuntarily by adolescent at school, home or along a street.

Various researches have been conducted across the world to identify prevalence and associated factors of sexual abuse among adolescents and youth. The finding of these researches differs according to its geographically location, method of study design used and time at which the study conducted.

To the best of our knowledge there is limited research on sexual abuse in Nekemte town and no research done in the intended study area, Nekemte secondary school. In this study every attempt was made to clearly identify the extent of sexual abuse among adolescents and where and how they are abused.

### Significance of the study

Sexual abuses in adolescents occur worldwide in general and in developing counties in particular with different severity and magnitude. Basically sexual abuse is less reported than actually in general population due to extent of its perception as well as shameful perception and ill treatment from the community.

The result of this study help health sector and education office of Nekemte town to plan on identified magnitude of sexual abuse among adolescents at school level and take preventive action to tackle social, physical and psychological problem associated with sexual abuse.

The finding of the study will also serve as a source of information for concerned bodies like planners, governmental and nongovernmental organizations who need to know and intervene about sexual abuse on adolescent at different level in the study area. Other researchers who will be interested to conduct further study on similar study subjects may also use as a base line data and information.

### Methods and Materials

### Study area and period

Nekemte is the capital city of East Wollega zone located 331 km away from Addis Ababa. The location of the town on the map is 9 degree 05' North latitude, and 36-degree 33' East longitude. The topography of the town is full of ups and downs; its altitude ranges from 1380 m to 2300 m above sea level & the total surface area of the sub-city is estimated to be 32 Sq.km. The town is geographically surrounded by four rural kebeles as: Gari Kebele in the East, Feyinerakebele in the West, Kitessa Kebele in the North and Alemikebele in the South. The climatic condition of the town is midland with annual temperature of 12-34 degree Celsius. The rain fall covers about seven months of the year with mean annual rainfall of 1850 mm.

The total population of the town as projected from 2007/2008census is about 88,969; from which 44,340 (49.8%) are males, and 44,627 (50.2%) are females. Different ethnic group; Oromo, Amhara, Gurage,Tigire… etc live in the town. Different religion followers like Protestant, Orthodox, Muslim, and waaqeffat a live in the sub-city. The town is divided in to six sub-cities (kifleketema) as Darge, BekeJema, Cheleleki, Kasso, Burka Jato and Bakanisa Kasse. There are different government, private and nongovernmental organization and institutions in the town. Nekemte town has one governmental hospital three health center (2 governmental and & 1 nongovernmental), 7 higher private clinics. The town has also different types of organizations; 15 kindergarten, 10

primary school, 6 preparatory school (3 governmental, 3 private), 8 high school (5 governmental, 3 private), 2 technical school, 5 collages, 4 non-governmental distance education centers, 1 government university and 3 private university collage. Common religious institutions in the town are protestant church, Orthodox Church, Mosque and Catholic Church in the decreasing order of their number. The study was conducted from March 1$^{st}$ to 15$^{th}$ 2017.

### Study design

Institutional based cross-sectional study was conducted.

### Source population

All high school students in Nekemte town were the source population of the study.

### Study population

Those adolescent students in selected schools and fulfill the inclusion criteria was considered as study population.

### Eligibility criteria

**Inclusion criteria:** Adolescent students in selected high schools and those attend regular during working time.

- Those available during data collection.

**Exclusion criteria:**

- Adolescent students in selected high schools and those attend their class during weekend and night time.

- Those critically ill and unable to give information.

### Sample size determination

The sample size was calculated by using a single population proportion formula with assumptions of 47.5% of adolescent sexual abuse (9), 95% confidence interval, 5% margin of error and consider 10% of non-response rate.

$$n = \frac{Z^2 P(1-P)}{d^2}$$

$$n = \frac{(1.96^2 * 0.475)(1-0.475)}{0.05^2} \cong 383$$

Since the source population is less than 10,000, correction formula is used to determine the sample size.

$$nf = \frac{n}{1 + n/N}$$

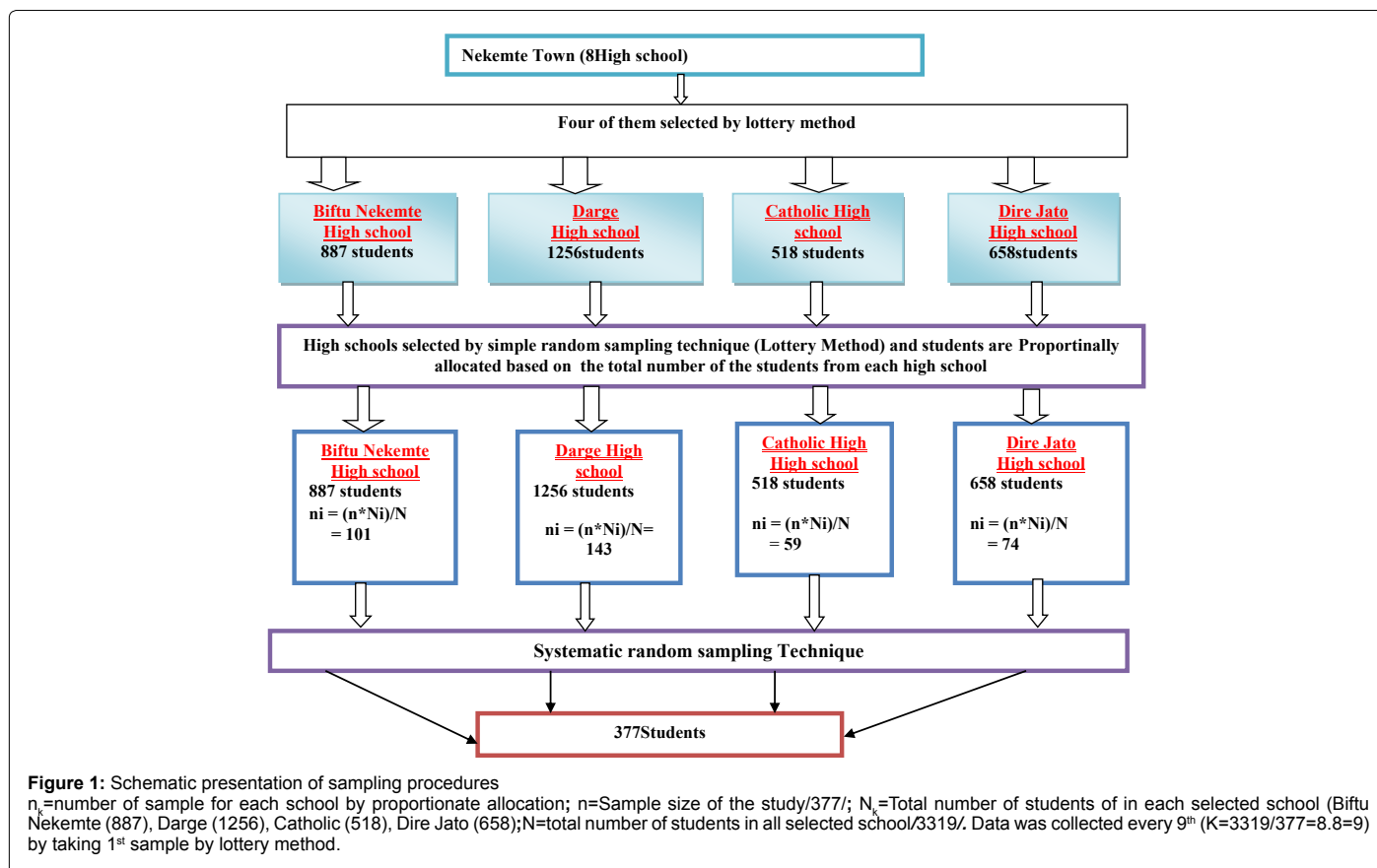$$nf = \frac{383}{1 + 383/3319}$$

$$= \frac{383}{1.115} = 343$$

By adding 10% non-response rate (343+34) the final sample size was=377

Where, A Z-value of 1.96 used at 95% CI and d of 5%, n=sample size, P=Proportion, d=margin of error).

### Sampling techniques

Systematic random sampling technique was used to select adolescent students in Nekemte town high school. Grade 9$^{th}$ to 12$^{th}$ students were incorporated based on existing student roster available in the school (Figure 1).



**Figure 1:** Schematic presentation of sampling procedures
$n_k$=number of sample for each school by proportionate allocation; n=Sample size of the study/377/; $N_k$=Total number of students of in each selected school (Biftu Nekemte (887), Darge (1256), Catholic (518), Dire Jato (658);N=total number of students in all selected school/3319/. Data was collected every 9$^{th}$ (K=3319/377=8.8=9) by taking 1$^{st}$ sample by lottery method.

## Data collection instrument

Data collection instrument was adopted after reviewing different literature and developed according to the study variables. It is prepared in English language and translated to Afaan Oromo by language expert and re translated to English language to check its consistency. The questionnaire has three parts; socio economic and demographic characteristics of adolescents, socio economic and demographic characteristics of parents of adolescents and factors of sexual abuse among adolescents.

## Pre-test

A pretest was under taken a week before the actual data collection on 5% sample size at Kesso high school. Based on the result the appropriate amendment was taken.

## Data collection procedure

In the data collection 4 diploma nurses (1 for each selected school) were recruited to guide the adolescents before and during data collection. During data collection supervisor was assigned to assure the quality of data collection at spot. Adolescent students filled the questionnaire based on the guidance given for them and instruction written on the questionnaire. If the student selected is not between aged 10-19 years during time of data collection the next student was selected.

## Study variables

### Dependent variables:

- Sexual abuse

### Independent variables:

- *Socio-economic and demographic variables:* Residence, marital status, ethnicity, religion, family size, monthly income, education, occupation

- *Adolescent's characteristics:* Age, Sex, marital status, Grade attending, own income

- *Life style:* life style, unhealthy life style, watching pornographic movies

## Operational definitions

**Abuse:** Any unwanted or involuntary abuse of adolescents anywhere by whomever.

**Sexual abuse:** Any unwanted or involuntary abuse of adolescents anywhere by whomever for the intention of sexual action.

**Associated factors:** Factors significantly associated with sexual abuse of adolescents

**Adolescents:** Individual who are male or female aged 10-19 years.

**Family size:** refers to total number of people living in a house during the study period.

**Income:** It is periodical monthly earning from one's business, lands, work, investment etc.

## Data quality management

Structured questionnaire is prepared in English language and translated to Afaan Oromo for field work purpose. Pre-test of the questionnaire was done on 5% of sample size in similar area, which is not include in study before the actual data collection to see for the accuracy of responses and to estimate time needed. On daily basis collected information was reviewed and possible errors were returned to the collectors for correction. Training and orientation was given to the data collectors and close supervision was done during data collection

## Data processing and analysis

The data was checked for completeness, coded and entered in to SPSS a computer software version 20. After edited, cleaned, and processed, it was analyzed using SPSS for window version20. Descriptive statistics of mean and standard deviation was used to examine the prevalence and associated factors of sexual abuse.

A binary logistic regression analysis was performed to determine sexual abuse and associated factors. Statistical association was checked by 95% confidence interval and crude odd ratio. The significant variables (p-value <0.05) observed in bivariate analysis was subsequently included in multivariate analysis. Finally, 95% confidence interval and adjusted odd ratio was checked and the significance variables were taken as associated factors of sexual abuse. P-value <0.05was considered as statistically significant.

## Ethics approval and consent to participate

Ethical clearance was obtained from Ethical Review Board of Wollega University, College of Medical and Health sciences, Department of Nursing and midwifery. Privacy and confidentiality of collected information was ensured at all level. Respondents were asked for their willingness to participate on the study and verbal consent was obtained. The purpose of the study was clearly explained for the respondents and the study was depending on their willingness. For participating in this study the respondents was not paid an incentive and also was not be harmed.

## Results

In the study 377 student adolescents were participated which makes the response rate of the study 100%.

## Socio-economic and demographic characteristics of adolescents

In the study sex distribution of the study participants; 167 (44.3%) were male and 210 (55.7%) were female. The mean age of the student adolescents were 17.32 (SD ± 1.29) years with a minimum and maximum of 15 and 19 years respectively. Since only high school adolescents were included in the study their age is 15-19 years. Concerning level of education (grade adolescents attending) of the study participants; 119 (31.6%) were 9th grade, 143 (37.9%) were 10th grade, 82 (21.8%) were 11th grade and 33 (8.8%) were 12th grade.

Nearly half, 184 (48.8%) of adolescents were protestant followed by Orthodox 129 (34.2%) in religion and majority, 313 (83.0%) of adolescents were Oromo by ethnicity. Regarding the marital status of student adolescents 361 (95.8%) of them were single and only 16 (4.2%) of adolescents were currently married. Living style of adolescents were also assessed, 241 (63.9%), 45 (11.9%), 69 (18.3%) and 22 (5.8%) of adolescents live with biological parents, single biological parents, friend/relative and alone respectively. Among the study participants more than three fourth 309 (82.0%) do not have their own income while other 68 (18.0%) of them have their own income (Table 1).

## Socio-economic and demographic characteristics of parents of adolescents

Average monthly income of parents of adolescents was assessed and the mean monthly income was 2381.51 (SD ± 1513) ETB ranging

from 300.00 ETB to 800.00 ETB which may show variation of economic status of parents of adolescent's in the study area. The mean family size of the HH of adolescents was 5.56 (SD ± 1.50) HH members with minimum and maximum of 2 and 9 HH members respectively. From HH of adolescents number of adolescents residing in the HH was also identified and the mean number of adolescents in the HH was 2.35 (SD ± 0.89) adolescents with a range of 3 (minimum 1 and maximum 4) adolescents. The mean distance of school from home of adolescents was 2.40 (SD ± 1.54) Km with a minimum and maximum of 1 Km and 8 Km respectively (Table 2).

Educational status and occupation of both parents were assessed and except Unable to read and write 37 (9.8%) and 41 (10.9%) read and write only other have similar distribution which was 102 (27.1%) primary, 86 (22.8%) Secondary and 111 (29.4%) were diploma and above level of education of the father of adolescents. Nearly one third,

125 (33.2%) of father of adolescents were daily laborer, more than one fourth, 109 (28.9%) has private business, 102 (27.1%) were government employee by occupation. Regarding educational status of mother of adolescents 114 (30.2%) and 86 (22.8%) had primary and secondary education. The occupation of mother of adolescents, nearly one third, 121 (32.1%) were housewife, 89 (23.6%) were daily laborer and 79 (21.0%) had private business (Figure 2).

### Sexual abuse and sexual characteristics of adolescent

Among study participants involved in the study 126 (33.4%) were sexually abused at least once in their life time. Type of sexual abuse adolescents faced was mental (psychological) abuse followed by

| Variables | Response | Frequency | Percentage (%) |
|---|---|---|---|
| Sex of adolescents | Male | 167 | 44.3 |
| | Female | 210 | 55.7 |
| Age of adolescents | 15-17 Years | 197 | 52.3 |
| | 18-19 Years | 180 | 47.7 |
| Religion | Orthodox | 129 | 34.2 |
| | Muslim | 25 | 6.6 |
| | Protestant | 184 | 48.8 |
| | Catholic | 10 | 2.7 |
| | Waaqeffata | 29 | 7.7 |
| Ethnicity | Oromo | 313 | 83.0 |
| | Amhara | 42 | 11.1 |
| | Gurage | 17 | 4.5 |
| | Tigre | 5 | 1.3 |
| Marital Status of adolescents | Single | 361 | 95.8 |
| | Currently married | 16 | 4.2 |
| Level of education (Grade adolescents attending ) | 9th grade | 119 | 31.6 |
| | 10th grade | 143 | 37.9 |
| | 11th grade | 82 | 21.8 |
| | 12th grade | 33 | 8.8 |
| With whom do adolescents live? | Both biological parent | 241 | 63.9 |
| | Single biological parent | 45 | 11.9 |
| | Friends or relatives | 69 | 18.3 |
| | Alone | 22 | 5.8 |
| Do you have your own income? | Yes | 68 | 18.0 |
| | No | 309 | 82.0 |

**Table 1:** Socio-economic and demographic characteristics of adolescents, Nekemte High school, East Wollega, Oromia, Ethiopia, March 2017.

| Variables | Responses | Frequency | Percentage (%) |
|---|---|---|---|
| Occupation of mother of adolescents | Daily laborer | 89 | 23.6 |
| | Government employee | 56 | 14.9 |
| | House wife | 121 | 32.1 |
| | Employed in private sector | 16 | 4.2 |
| | Has private business | 79 | 21.0 |
| | Unemployed | 16 | 4.2 |
| Occupation of father of adolescents | Daily laborer | 125 | 33.2 |
| | Government employee | 102 | 27.1 |
| | Employed in private sector | 31 | 8.2 |
| | Has private business | 109 | 28.9 |
| | Unemployed | 10 | 2.7 |
| Marital status of parents of adolescents | Currently married | 350 | 92.8 |
| | Divorced | 12 | 3.2 |
| | Widowed | 15 | 4.0 |
| Current residence of parents of adolescents | Urban | 271 | 71.9 |
| | Rural | 106 | 28.1 |
| Total adolescents in the household | One | 68 | 18.0 |
| | Two | 144 | 38.2 |
| | Three and above | 127 | 33.7 |
| | No adolescent except | 38 | 10.1 |
| Family size of HH of adolescents | Small family (1-3) | 26 | 6.9 |
| | Medium family (4-6) | 254 | 67.4 |
| | Large family (7-9) | 97 | 25.7 |
| Average monthly income of HH of adolescents | < or=500 ETB | 27 | 7.2 |
| | 501 to 1500 ETB | 129 | 34.2 |
| | 1501 to 3000 ETB | 136 | 36.1 |
| | 3001 to 4500 ETB | 38 | 10.1 |
| | 4501 and above ETB | 47 | 12.5 |
| School distance from home | 1 to 3 Km | 298 | 79.0 |
| | 4 to 6 Km | 73 | 19.4 |
| | 7 and above Km | 6 | 1.6 |

**Table 2:** Socio-economic and demographic characteristics of parents of adolescents, Nekemte high school, East Wollega, Oromia, Ethiopia, March 2017.
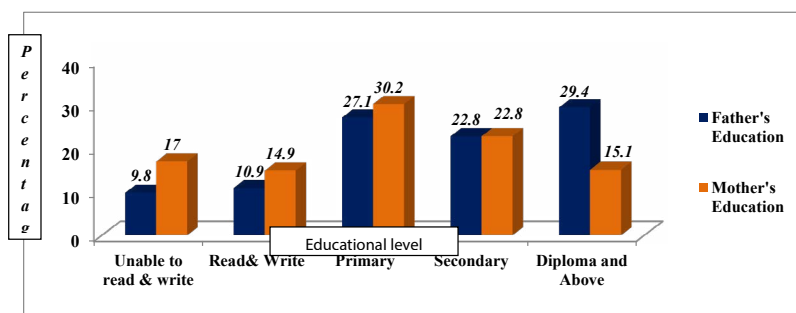


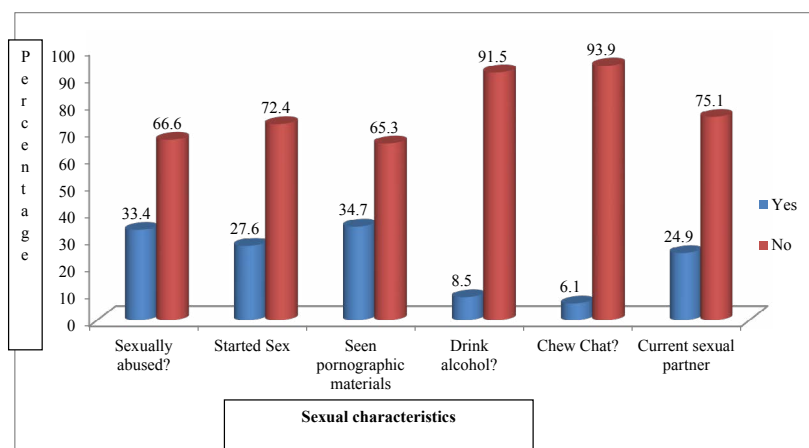**Figure 2:** Educational status of parents of adolescents, Nekemte High School, East Wollega, Oromia, Ethiopia, March 2017.

**Figure 3:** Sexual characteristics of adolescents, Nekemte High school, East Wollega, Oromia, Ethiopia, March 2017.

| Variables | Response | Number | Percentage (%) |
|---|---|---|---|
| Have you ever sexually abused? | Yes | 126 | 33.4 |
| | No | 251 | 66.6 |
| Type of sexual abuse face by adolescents | Attempted rape | 24 | 19.0 |
| | Forced (coerced) sex | 10 | 7.9 |
| | Physical abuse | 32 | 25.4 |
| | Mental (psychological) abuse | 55 | 43.7 |
| | Other | 5 | 4.0 |
| Time at which adolescents sexual abuse | Day time | 89 | 70.6 |
| | Night time | 37 | 29.4 |
| Lace where adolescents sexually abused | At home | 25 | 19.8 |
| | In school | 24 | 19.0 |
| | Out of school | 39 | 31.0 |
| | Other Place | 38 | 30.2 |
| Relation of adolescents to sexual abuser | Acquaintance | 56 | 44.4 |
| | Friends (School boy/girl) | 31 | 24.6 |
| | Out of school boy/girl | 18 | 14.3 |
| | Relatives | 21 | 16.7 |
| Age of sexual abuser in relation to adolescents | Younger than the respondents | 1 | 0.8 |
| | The same age a respondents | 38 | 30.2 |
| | Older than the respondents | 55 | 43.7 |
| | Unknown | 32 | 25.4 |
| Action taken by victim of sexual abuse | Nothing | 19 | 15.1 |
| | Verbal retaliation | 24 | 19.0 |
| | Run Away | 23 | 18.3 |
| | Physical retaliation | 15 | 11.9 |
| | Avoided (ended friendship) | 20 | 15.9 |
| | Told parent | 25 | 19.8 |
| Ever started sexual intercourse? | Yes | 104 | 27.6 |
| | No | 273 | 72.4 |
| Reason to start sex | Fall in love | 38 | 36.5 |
| | Desire to practice sex | 7 | 6.7 |
| | Got married | 14 | 13.5 |
| | Forced (coerced) | 4 | 3.8 |
| | Material gift | 14 | 13.5 |
| | Peer pressure | 19 | 18.3 |
| | Dunked | 8 | 7.7 |
| Age at first sexual intercourse | <15 Years | 12 | 11.5 |
| | 15-17 Years | 68 | 65.4 |
| | > or=18 Years | 24 | 23.1 |

**Table 3:** Sexual abuse and sexual characteristics of adolescent, Nekemte high school East Wollega, Oromia, Ethiopia, March 2017.

physical abuse and attempted rape which accounts for 55 (43.7%), 32 (25.4%) and 24 (19.0%) respectively. Place where adolescents abused according to its decreasing order were, out of school 39 (31.0%), other place 38 (30.2%), at home 25 (19.8%) and in school accounting 24 (19.0%). Among respondents, nearly three fourth, 89 (70.6%) of were sexually abused during day time and the rest 37 (29.4%) were abused at night.

Among adolescents participated in the study majority of them, 345 (91.5%) do not drink. Chat chewing characters of adolescent were also assessed and majority 354 (93.9%) of adolescents do not chew chat as well 131 (34.7%) of adolescents seen pornographic materials. From a total of adolescents, 104 (27.6%) had sexual intercourse and the remaining 273 (72.4%) responded that they did not started sexual intercourse. Reason to start sex by adolescents, 38 (36.5%) were fall in love and age at which they started sex, two third, 68 (65.4%) was 15 to 17 years. Ninety four (24.9%) of adolescents currently have sexual partner and the other did not. Among respondents who have sex partner currently, number of sexual partner were 75 (79.8%) one, 9 (9.6%) two and 10 (10.6%) had three sexual partner (Figure 3) (Table 3).

**Factors associated with sexual abuse of adolescents**

Different variables were assessed to identify factors associated with sexual abuse of adolescent students in the study area. Binary logistic regression analysis was employed in the identification of the factors using computer software. On bivariate analysis adolescent level of education, educational status of father and mother, occupation of father and mother, residence, alcohol consumption, chewing chat, seeing pornographic materials, had sexual intercourse and having current sexual partner were significantly associated with sexual abuse of adolescents.

Factors significantly associated with sexual abuse of adolescents in bivariate analysis were taken to multivariate analysis of regression. After running multivariate analysis factors significantly associated with sexual abuse of adolescents were adolescents' level of education (grade they are attending), Fathers' occupation, mothers' educational status and occupation, alcohol consumption and had started sexual intercourse.

Regarding grade adolescents attending, being in grade 10th 2.85 (95% CI 1.01, 8.14), grade11[th] 6.93 (95% CI 2.41, 19.9) and grade 12th 3.218 (95% CI 1.07, 9.62) are high risk for sexual abuse when compared

| Variables | Response | Sexually Abused | | COR(95%CI) | AOR (95%CI) |
| --- | --- | --- | --- | --- | --- |
| | | Yes | No | | |
| Adolescent's Level of education | 9th grade | 39 (10.3%) | 80 (21.2%) | 1 | 1 |
| | 10th grade | 38 (10.1%) | 105 (27.9%) | 1.34 (0.79, 2.29) | 2.85 (1.01, 8.14) |
| | 11th grade | 31 (8.2%) | 51 (13.5%) | 0.80 (0.44, 1.44) | 6.93 (2.41, 19.9) |
| | 12th grade | 18 (4.8%) | 15 (4.0%) | 0.41 (0.18, 0.89) | 3.218 (1.07, 9.62) |
| Educational status of father | Unable to read and write | 18 (4.8%) | 19 (5.0%) | 0.35 (0.16, 0.77) | 1.43 (0.33, 6.22) |
| | Read & write only | 15 (4.0%) | 26 (6.9%) | 0.58 (0.27, 1.25) | 2.77 (0.76, 9.99) |
| | Primary (1-8th) | 34 (9.0%) | 68 (18.0%) | 0.67 (0.37,1.22) | 1.73 (0.62, 4.84) |
| | Secondary (9-12th) | 31 (8.2%) | 55 (14.6%) | 0.59 (0.32, 1.10) | 1.53 (0.60, 3.93) |
| | Diploma and above | 28 (7.4%) | 83 (22.0%) | 1 | 1 |
| Father's occupation | Daily laborer | 56 (14.9%) | 69 (18.3%) | 1 | 1 |
| | Gov't employee | 22 (5.8%) | 80 (21.2%) | 2.95 (1.63, 5.31) | 3.02 (1.01, 9.05) |
| | Private sector employee | 7 (1.9%) | 24 (6.4%) | 2.78 (1.11, 6.93) | 2.62 (0.72, 9.56) |
| | Private business | 38 (10.1%) | 71 (18.8%) | 1.51 (0.89, 2.57) | 0.83 (0.35, 1.97) |
| | Unemployed | 3 (0.8%) | 7 (1.9%) | 1.89 (0.46, 7.66) | 1.09 (0.19, 6.27) |
| Educational status of mother | Unable to read and write | 27 (7.2%) | 37 (9.8%) | 0.32 (0.14, 0.74) | 0.36 (0.07, 1.75) |
| | Read & write only | 25 (6.6%) | 31 (8.2%) | 0.29 (0.12, 0.68) | 0.17 (0.04, 0.72) |
| | Primary (1-8th) | 41 (10.9%) | 73 (19.4%) | 0.42 (0.19, 0.91) | 0.15 (0.04, 0.56) |
| | Secondary (9-12th) | 22 (5.8%) | 64 (17.0%) | 0.69 (0.30, 1.57) | 0.38 (0.11, 1.34) |
| | Diploma and above | 11 (2.9%) | 46 (12.2%) | 1 | 1 |
| Mother's occupation | Daily laborer | 42 (11.1%) | 47 (12.5%) | 1 | 1 |
| | Gov't employee | 14 (3.7%) | 42 (11.1%) | 2.68 (1.28, 5.58) | 0.70 (0.19, 2.54) |
| | House wife | 34 (9.0%) | 87 (23.1%) | 2.28 (1.28, 4.06) | 1.77 (0.76, 4.15) |
| | Private sector employee | 8 (2.1%) | 8 (2.1%) | 0.89 (0.30, 2.59) | 0.21 (0.04, 0.98) |
| | Private business | 26 (6.9%) | 53 (14.1%) | 1.82 (0.97, 3.41) | 1.14 (0.40, 3.25) |
| | Unemployed | 2 (0.5%) | 14 (3.7%) | 6.25 (1.34, 29.14) | 1.98 (0.33, 11.74) |
| Residence | Urban | 79 (21.0%) | 192 (50.9%) | 1 | 1 |
| | Rural | 47 (12.5%) | 59 (15.6%) | 0.51 (0.32, 0.82) | 0.66 (0.34, 1.29) |
| Drink alcohol? | Yes | 23 (6.1%) | 9 (2.4%) | 1 | 1 |
| | No | 103 (27.3%) | 242 (64.2%) | 6.0 0 (2.68, 13.42) | 4.07 (1.37, 12.08) |
| Chew Chat? | Yes | 14 (3.7%) | 9 (2.4%) | 1 | 1 |
| | No | 112 (29.7%) | 242 (64.2%) | 3.36 (1.41, 7.99) | 1.06 (0.30, 3.70) |
| Seen pornographic movies | Yes | 66 (17.5%) | 65 (17.2%) | 1 | 1 |
| | No | 60 (15.9%) | 186 (49.3%) | 3.14 (2.00, 4.93) | 1.61 (0.89, 2.89) |
| Had sexual intercourse? | Yes | 69 918.3%) | 35 (9.3%) | 1 | 1 |
| | No | 57 (15.1%) | 216 (57.3%) | 7.47 (4.52, 12.32) | 7.00 (2.73, 17.94) |
| Have current sex partner? | Yes | 69 (18.3%) | 35 (9.3%) | 1 | 1 |
| | No | 57 (15.1%) | 216 (57.3%) | 5.09 (3.09, 8.37) | 1.30 (0.49, 3.47) |

**Table 4:** Factors associated with sexual abuse among adolescent students, Nekemte High school, February, 2017.

to attending grade 9th. This could be due to increase in age of adolescents and as well as sexual need of the adolescents. Fathers occupation was among factors associated with sexual abuse of adolescents and adolescents whose their father is government employee is three times (3.02 (95% CI 1.01, 9.05)) at risk than adolescents whose their father is daily laborer.

Mothers' education was significantly associated with adolescents sexual abuse and adolescents whose mother read & write only (0.17(95% CI 0.04, 0.72)) and attended primary (1-8th grade) school (0.15 (95% CI 0.04, 0.56)) was at less risk when compared to adolescents whose mother attended diploma and above level of education. In multivariate analysis mothers' occupation was associated and an adolescent whose mother was employed in private sector was at less risk when compared to whose mother are daily laborers.

In the study drinking alcohol was inversely associated with sexual abuse and those adolescents who do not drink alcohol are four times (4.07 (95% CI 2.68, 13.42)) at risk to be sexually abused than those

who drink alcohol. Adolescents who did not had sexual intercourse are seven folds (7.00 (95% CI 2.73, 17.94)) at risk than adolescents who had sexual intercourse. This can due to respect married adolescents get from their peer after engaging in marriage or being dated for marriage (Table 4).

## Discussion

Among study participants involved in the study 126 (33.40%) of adolescent students were sexually abused with different type of sexual abuse at various places. Globally about 14% of adolescents are sexually abused in school sometimes in their lives and only 10% adolescents report as sexually abused among out of school and more boys than girls are sexually abused during early adolescent age than late adolescent. In this study females than males (46.8% versus 53.2%) are slightly sexually abused. When compared with the global prevalence it is much higher. The discrepancy could be due to large sample size and economic difference in various countries [12].

But prevalence of sexual abuse among adolescents in current study

is less than that of study conducted on homeless adolescents which ranges from 75% to 89%. Among study participants sexually abused 56 (44.4%) of them were abused by someone they do not knew which is higher than that of homeless adolescents. This may show that sexual abuse among homeless adolescent very high when compared to those adolescents living with their parents. In addition, the variation in prevalence of sexual abuse among adolescents could be due to variation in study design and study area since study design of sexual abuse among homeless was longitudinal [13].

The finding of this study showed that 126 (33.4%) of adolescents were sexually abused which almost similar to study conducted among young people of South Africa which was 35.4%. The main impacts of sexual abuse on adolescents were social and emotional development and health and wellbeing of adolescents. The rate of sexual abuse and reported prevalence of sexual abuse was disproportionate and less was reported in different countries including the current study [14,15].

As in other developing countries many of adolescents have been victimized by sexual abuse and used different defensive mechanism against sexual abuse. Some of adolescents did nothing while others run away and retaliation (verbal/physical). In similar study conducted in Bangladesh indicated that adolescents are often too ashamed or frightened to complain as they are being sexually abused. This could be due to perception of our community in which we are living or could be taken as a normal phenomenon by the community due to lack of awareness on its impact [16]. Peer (in school or out of school) sexual assault also reported in this study with 24.6% and 14.7% respectively that had similarity with study conducted in Southeastern Michigan with 26% of high school boy sexual assault by peers [17].

In this study 352 (80.2%) of adolescents did not disclosed sexual abuse to any one and took their own action whereas only 25 (19.8%) of adolescent students disclosed sexual abuse to their parents. Also in this study none of adolescent students notified their sexual abuse police while in United State about 5.7% of sexual abuse notified police. In general population sexual abuse is reported in lower rate than actual happen by adolescents [11,17]. In general population the prevalence of sexual abuse is estimated to be 21% to 42% while reported sexual abuse is about 1% to 3% [11]. The disclosure of sexual abuse among developed country was unacceptably high when compared to developing country. In United State about 42% of males never have disclosed the experience of sexual abuse and 33% of female adolescents never disclosed their sexual abuse to anyone. This number is very high and needs consideration on disclosure and notification of sexual abuse to concerned bodies for prevention of further sexual abuse among adolescent students [11,17,18].

In this study adolescent students experienced sexual abuse at the hands of a family member 21 (16.7%), or by someone outside of the family 356 (83.3%) which have great psychological impact later in their social, educational and economic life. Most of the time researches are conducted on sexual abuse and health outcome of young people including children and adolescents in developed country than that of developing country [16,17,19].Adolescent and youth sexual abuse is a major risk factor for a variety of problems, both in the short term and in later adult functioning such as emotional distress (anger, depression and anxiety), interpersonal difficulties and impaired sense of self [7]. Young people including adolescents who are sexually abused are at risk for short term and lifelong negative sexual outcomes. Among the negative sexual health outcome; teen pregnancy, STI including HIV infection, substance use and abuse, domestic violence or physical abuse, and risk taking behavior are the commonest [19].

Developing countries face great challenges from impact of sexual abuse that occur during adolescence. In this study among all study participants 59 (15.6%) of male and 67 (16.7%) of female were sexual abused that is higher than study conducted in India with 7.84% and 13.53% for male and female respectively. Adolescents who had reported sexual intercourse in current study was 66 (17.5%) male and 38 (10.1%) female from total of study participants while in India it was about 6.31% and 1.31% for male and female respectively. Ranges for the age at first sexual inter course varies from study and to study while in current study 68 (65.4%) of adolescents started sexual intercourse at the age of 15-17 years while average at first sexual intercourse was 15.25 years for boys and 16.66 years for girls in study conducted in India [20]. The difference in prevalence of sexual abuse in the study could be difference in study design or nature of the population of study area or else could be variation in socio-economic development status of the population. Age at first sex is almost similar for both study population.

In this cross sectional study prevalence of sexual abuse is 33.4%. Penetrating abuse was related to more severe abuse characteristics, less frequent disclosure, more emotional and behavioral symptoms, weaker sense of coherence and poorer self-esteem when compared to non-abuse, non-contact or contact abuse [5]. Magnitude of lifetime sexual abuse among adolescents and youth varies from study to study as well as from country to country. The risk of sexual abuse in lifetime increases as age of adolescent increases in the study conducted through telephone in USA was 26.6% which increases from 16.8% for 15 years to 26.6% for 17 years adolescents [21].

In current study prevalence of alcohol drinking and chat chewing among adolescents was 8.5% and 6.1% respectively while in West Gojjam zone of Shendi town was 71.2% and 1% respectively [8]. According to this study factor of sexual abuse among adolescents was level of education, mothers and fathers' occupation, mothers' educational status, alcohol consumption and having sexual intercourse significantly associated. In different study drug addiction and substance abuse [7], alcohol drinking, watching pornographic materials and life with friends, relative or alone [8] are significantly associated with sexual abuse of adolescents.

In current study the prevalence of having sexual intercourse was 104 (27.6%) In similar study area, Nekemte high school, prevalence of sexual intercourse before marriage was 21.5% and as a factor being male, ninth grade student and ever having sexual partner have significant positive association with sexual abuse. Age at first sex is almost in the same range for both male and female participants. This could be due to similarity in the study subject and study area, Nekemte town high school [9]. Sexual abuse is positively associated with suicide ideation and attempts among adolescents. Also Impact of sexual abuse on adolescents were found that street victimization and externalizing (behavior problem) and internalizing behavior (anxiety and depression) in various study and also estimated to be found in this finding [11].

## Limitation of the study

Since the main aim of the study was to investigate sexual abuse and associated factors among adolescents in Nekemte town high school, East Wollega zone, it does not include all the eligible participants other than sample due to lack of adequate time and resource for it. There may be recall bias and social desirability bias in the study participants.

## Conclusion and recommendation

### Conclusion

The finding of this study showed that many adolescent students were

sexually abused by different type of abuser at various place. Even though it is high the actual prevalence of sexual abuse among adolescents could be greater than reported. Because there is low disclosure and report of sexual abuse by adolescents than that occurs in the population in which the adolescents live. Prevalence of sexual abuse among in school adolescents needs due attention since it hinder education.

Factors of sexual abuse in this study was found to be level of education of adolescents, mothers' education and occupation and fathers' occupation positively associated with sexual abuse and had sexual intercourse and alcohol drinking inversely associated with sexual abuse.

## Recommendation

### For families, teachers and concerned others:

• Since reported prevalence of sexual abuse among adolescent students was high families, teachers and other concerned bodies should work on reduction of sexual abuse.

- Since the source of income of the father and mother depends on their occupation and associated with sexual abuse of adolescents improving the occupation as well as income of the family through income generating activities by government bodies is needed.

- For reduction of sexual abuse among in school and out of school adolescents it is recommended that creating awareness on magnitude and severity of sexual abuse is very mandatory.

### For education and health sectors

- Providing sexual and reproductive health education for adolescents giving due attention on short and long term impact of sexual abuse.

- When sexual abuse occurs, there should be way of notifying to families and concerned others in general and for police specifically.

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## Competing Interests

'The authors declare that they have no competing interests'. There was no financial interest between the research area community and us. Between the researchers, we have no any form of competing financial and non-financial interest.

## Authors' Contributions

"ZK participated in conception and design, proposal development, gathering data, performing the statistical analyses and interpretation of data in addition to drafting the manuscript for important intellectual content. KT coordinated and developed the study, proposal development, guided overall stage of the research and execution, commented on the principal idea of the paper, reviewed the statistical analyses and drafted the manuscript for important intellectual content. An author and co-author of this paper have read and approved the final version before manuscript submission".

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# Increasing Stroke Recognition and Behavioral Intent to Call Emergency Management Services in a Vietnamese American Population

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## Abstract

**Objective:** Serious complications of stroke, one of the leading causes of morbidity and mortality in the United States can be mitigated if treated in a timely manner. Stroke outcome disparity in Vietnamese Americans (VAs) is attributable to pre-hospital delay. To increase acute stroke recognition and behavior intent to call Emergency Management Services (EMS) among VAs and their families, an evidence-based, culturally and linguistically-appropriate educational intervention was pilot-tested.

**Methods:** A convenience sample of 38 Vietnamese-speaking adults recruited from a free community clinic participated in a one-hour educational session. Pre and post intervention surveys were administered to assess knowledge and intent.

**Results:** Differences in pre-test and post-test means were large for stroke knowledge (Cohen's D=2.39), associated emergency action (Cohen's D=2.57) and behavioral intent to call EMS (Cohen's D=0.94).

**Conclusion:** A linguistically and culturally appropriate community-based education intervention may be effective in increasing stroke recognition and behavior intent to call EMS among VAs.

**Keywords:** Stroke; Behavior intent; Vietnamese American; Emergency action

## Introduction and Background

Stroke is one of the leading causes of morbidity and mortality in the United States (US), and is a leading cause of serious long-term disability [1]. According to Yang et al. [2], strokes kills an estimated 140,000 people in US each year, and is the fifth leading cause of death. The risk and sequelae of stroke vary with race and ethnicity. Although Vietnamese Americans are not among the groups that are disproportionately affected by stroke incidence, they suffer the greatest proportionate mortality burden from the disease among the US Asian subgroup [3]. For example, the stroke proportionate mortality burden was 1.90 and 1.40 in Vietnamese women and men respectively, compared to 1.20 in non-Hispanic white women and 0.79 in non-Hispanic white men [3].

Eighty-seven percent of strokes are ischemic which can be treated with tissue plasminogen activator (tPA) if eligible patients present to the hospital within three hours of symptom onset 1, [4]; however, most patients medically eligible for tPA treatment arrive outside of the 3 h treatment window. Stroke pre-hospital delays and high stroke mortality rates are particularly noted among ethnic minorities, with Vietnamese Americans having a 107% longer delay compared to non-Hispanic whites [3].

Interventions that have the greatest impact in reducing stroke delay are those that focus on early stroke recognition by the patient or the bystander. Therefore, to reduce stroke morbidity and subsequent mortality, both the Centers for Disease Control and Prevention (CDC) [5] and the American Stroke Association [4] recommend wide scale implementation of these interventions.

There is a dearth of evidence regarding prevention efforts to specifically target Vietnamese Americans. Cultural and language challenges might contribute to these lacks of prevention efforts, although literature is also sparse with these data. For example, Southeast Asian immigrants may be hesitant in Emergency Medical Services (EMS) utilization when experiencing stroke symptoms because of poor command of the English language. A qualitative study conducted within a Vietnamese American community in Philadelphia found that participants' beliefs that they had poor language skills led to their decision to seek care at a Vietnamese-speaking doctor's office or traditional healer rather than at a hospital or non-English speaking health care provider [6]. In the context of stroke, this health seeking behavior can further delay treatment, resulting in devastating complications or death.

Evidence suggests that effective interventions aimed at reducing pre-hospital stroke delay should: (1) focus on improving the population's stroke recognition [5]; (2) address the discrepancy between knowledge and action; (3) target the behavior of activating EMS [7,8]; (4) include culturally and linguistically-appropriate materials [3,9]; (5) involve the community in the planning process and

be community-based [10]; and lastly (6) target high- risk individuals as well as family and bystanders [11]. Despite the high stroke mortality burden in the Vietnamese American population, there is a lack of research testing evidence-based interventions to reduce pre-hospital stroke delay in this population. The purpose of the study was to pilot test a linguistically and culturally appropriate educational intervention to improve stroke recognition and behavioral intent to call EMS, with the long-term goal of reducing pre-hospital stroke delay among Vietnamese Americans

## Methods

### Design, setting, and sample

The study had a one group pre-test/post-test design. The setting was a community-based organization that provides free health care services to uninsured Vietnamese Americans in a south eastern state. The organization, Boat People SOS (BPSOS), is a trusted national and local organization in the Vietnamese American community as it provides not only health services but other community empowerment services, such as computer and other educational classes [12].

The sample included thirty-eight Vietnamese American adults who met the following inclusion/exclusion criteria: 1) Vietnamese-speaking or bilingual and 2) 21 years of age and older. Because the educational intervention was presented using the Vietnamese language, those who did not speak or understand Vietnamese were excluded.

### Instruments

The study involved three instruments that were translated from English into Vietnamese. Procedures used to translate the instruments are described later in this section.

### Demographic form

Demographic data were collected on the following variables: age, gender, primary language spoken at home, education, history of stroke, and knowledge of someone else with stroke.

### Vignette questionnaire

The sixteen-item vignette questionnaire was used to measure knowledge of stroke and appropriate action for stroke symptoms. It was developed and validated by Skolarus et al. [8] using a community based participatory research method. The questionnaire consists of 12 stroke and 4 non-stroke vignettes, each with a two-part question: The first part measures stroke symptom recognition (knowledge), while the second part measures appropriate action for stroke symptoms. Respondents are presented with 3 response options for knowledge- Stroke, Not stroke, Don't know and 4 response options for action-Call doctor immediately, Wait a couple of hours, Call a family member immediately, or Call 911 immediately. Responses are scored as correct or not correct in relation to knowledge and action based on the scenario. Skolarus et al. [8] established content validity with experts and evaluated internal reliability using Cronbach α, which was 0.88 for stroke knowledge and 0.83 for stroke action. Possible range of scores was zero to 16 for stroke knowledge, with higher scores indicating greater knowledge. Possible range of score for action was zero to 12 with higher scores indicating more appropriate stroke action.

### Behavior intent survey

To measure the intent to call EMS for stroke symptoms which incorporated social norm, attitude, and self-efficacy constructs of the Theory of Planned Behavior (TPB), the author adapted a publicly available shortened seven-question survey (behavior intent survey) that Ajzen [13] designed. The possible range of the scores was from 1 to 5, with lower scores indicating greater intent to call EMS for stroke symptoms.

### Translation of study instruments

To ensure the cultural and linguistic appropriateness of the study instruments, the author employed the community-engaged approach that is supported by several studies [8,9]. The author, who is native Vietnamese and fluent in the language, translated all the study instruments from English into Vietnamese. The trained translator staff of the intervention site BPSOS, subsequently reviewed the translated versions for linguistic and cultural appropriateness. An iterative process was utilized to incorporate the feedback from the translator into a revised version. The director of the community organization reviewed and approved the final versions of the instruments prior to use.

## Procedures

The study was approved and a waiver of written consent were provided by the Augusta University Institutional Review Board. BPSOS clients were invited to attend one of four 45-min educational sessions. Prior to the intervention, clients were screened using the established inclusion/exclusion criteria. Participants then completed the demographic questionnaire, the vignette survey, and the behavioral intent questionnaire. No participant identifiers were collected; instead, participants were assigned unique numerical codes which were used to link pre and post-test surveys. Following completion of the educational intervention, participants completed the vignette survey and behavioral intent questionnaire again.

### Description of the intervention

The intervention was based on Ajzen's Theory of Planned Behavior [13] and incorporated educational materials with demonstrated effectiveness. The author conducted the educational sessions in Vietnamese, using several teaching materials: The Face, Arm, Speech Time (FAST) message, illustrated in Figure 1. The FAST message, which visually depicts an individual experiencing stroke symptom with an emphasis on facial drooping, arm weakness, and slurred speech, has been shown to be reliable and valid in educating the public on stroke recognition and the importance of calling EMS [14]. The FAST message was presented in two formats: In a PowerPoint presentation and a refrigerator magnet distributed to participants; [2]. The 16-vignette by Skolarus et al. [8] While the same 16 vignettes were used as a pre and post-questionnaire to measure stroke knowledge and intent to call EMS, the vignette questionnaire was also incorporated into the teaching materials. The teaching materials were used to (1) reinforce the stroke knowledge message, (2) provide the participants the context for stroke recognition, and (3) improve the participants' behavioral intent to call EMS. According to Ajzen [13], practicing a behavior improves self-efficacy, which directly impacts behavior intent. To improve self-efficacy, the participants practiced dialing 911 on a simulated telephone and saying a simple English phrase: "Help! Stroke!". After listening to the educational PowerPoint presentation

detailing the FAST components, reviewing the vignettes, and practicing dialing 911, the participants completed the post-intervention questionnaires.
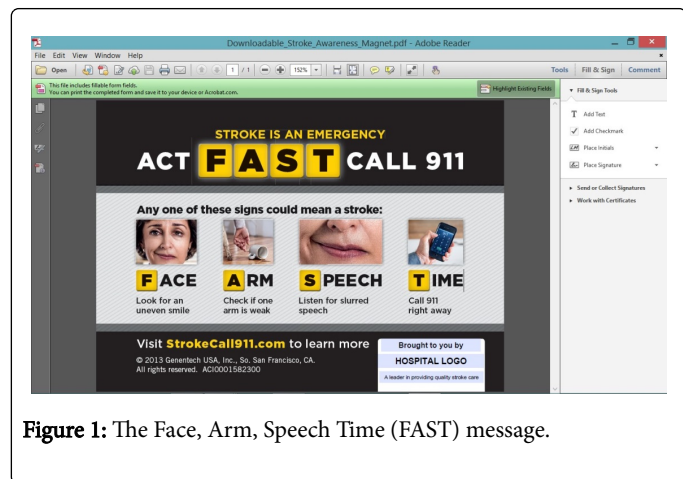


**Figure 1:** The Face, Arm, Speech Time (FAST) message.

## Data Analysis

Descriptive statistics were generated to characterize the sample. Because of the small sample size, effect sizes were calculated for the differences in pre-test and post-test means using Cohen's D. Effect sizes were interpreted using Cohen's recommendation of 0.2=small effect, 0.5=medium effect, and 0.8=large effect [15].

## Results

Thirty-eight Vietnamese-speaking adults participated in four different sessions. Demographic data for the sample are shown in Table 1. The majority (63%) of the participants were aged 55 and above; most (55%) were men. The majority (89%) spoke Vietnamese only. Only one participant had a personal history of stroke, but the majority (58%) knew someone who had experienced a stroke. Table 2 reports the pre and post test scores for stroke knowledge, stroke action, and intent to call EMS. The group sample sizes used to calculate Cohen's D varied due to missing data. Cohen's effect sizes were large for stroke knowledge, stroke action, and behavioral intent with the strongest effect on stroke knowledge and stroke action, and weakest related to behavioral intent.

| Characteristics | n | % |
|---|---|---|
| Age in years | | |
| 21-54 | 14 | 36.8 |
| 55 and older | 24 | 63.2 |
| Gender | | |
| Male | 21 | 55.3 |
| Female | 16 | 42.1 |
| Missing | 1 | 2.6 |
| Primary Language spoken at home | | |
| Vietnamese | 34 | 89.5 |
| English | 4 | 10.5 |
| Education | | |
| Grade 12 and above | 31 | 81.6 |
| Up to Grade 11 | 7 | 18.4 |
| History of Stroke | | |
| Yes | 1 | 2.6 |
| No | 35 | 92.1 |
| No Response | 2 | 5.3 |
| Know someone with stroke | | |
| Yes | 22 | 57.9 |
| No | 12 | 31.6 |
| No Response | 4 | 10.5 |

**Table 1:** Characteristics of Participants (n=38).

| Variables | Pre- Intervention | | | Post- Intervention | | | Cohen's D effect size |
|---|---|---|---|---|---|---|---|
| | Mean | SD | Observed Range | Mean | SD | Range | |
| Knowledge (n=30) | 6.73 | 3.57 | 0-12 | 13.56 | 1.88 | 7-15 | 2.39 |
| Stroke Action (n=33) | 5.27 | 3.51 | 0-12 | 11.75 | 0.61 | 9-12 | 2.57 |
| Intent (n=33) | 3.95 | 0.96 | 01-5 | 4.65 | 0.43 | 4-5 | 0.94 |

**Table 2:** Comparison of Pre-intervention and Post-Intervention Scores for Stroke Knowledge, Stroke Action, and Intent to Call EMS.

## Discussion

To our knowledge, this study is the first to report a pilot test of an intervention targeting stroke recognition and intent to call EMS among a Vietnamese American population. Results suggested that the intervention holds promise as effective, due, in part, to the linguistic and cultural appropriateness of the tools, the author's fluency in the target population language and cultural practice, as well as the community-engaged approach. For example, the BPSOS staff provided input on decisions regarding the selection of the FAST message and the vignettes for inclusion in the intervention content over the use of other teaching materials. Not only did the author translate the teaching material into Vietnamese, but the staff at BPSOS provided feedback to ensure the accuracy and appropriateness of the translated materials.

The FAST and vignette teaching materials were designed for the general population and an African American community, respectively, but they were deemed by the study investigators and BPSOS staff as most easy to adapt and made appropriate for use in the Vietnamese American population. Although widely used in US and Europe [16], the FAST message lacked the equivalent acronym in Vietnamese. The answer choices in the stroke action part of the vignettes, designed for an African American church-going community, did not include an action common in the Vietnamese American population-seeking help of an acupuncturist or traditional healer. However, the tools were simple to translate and most of the tools' elements were consistent with the Vietnamese American cultural practices such as family-related scenarios.

The intervention demonstrated that a brief educational session can be effective in increasing participants' knowledge of stroke signs and symptoms, stroke recognition, and behavior intent to call EMS for stroke signs and symptoms. The findings suggest that community-based stroke education may have the potential to reduce pre-hospital delay in the Vietnamese American population. According to a systematic review by Bouckaert and colleagues [16], public campaigns resulted in increased stroke knowledge, but the duration of knowledge increase was short-lived. Future studies should include larger samples, a control group, and provide prolonged exposure to stroke education and include multimedia presentations to provide the population with sustained interventions.

As stroke victims' judgement and physical ability are often impaired, educating young bystanders and family members on stroke recognition and EMS activation may increase the likelihood of reducing pre-hospital delay. Morgenstern and colleagues [17] demonstrated in a randomized control trial study the effectiveness of educating middle school students to increase the likelihood of their detecting stroke symptoms in their loved ones and activating EMS accordingly. Results of their study indicated that focusing stroke education effort on young bystanders might improve stroke recognition and EMS activation. Given the high rate of smartphone use, particularly among young bystanders, the development of stroke awareness phone applications is also recommended. The translated stroke vignette and FAST message delivered *via* cell phone may be effective to educate the young Vietnamese American population about stroke recognition and the importance of timely EMS activation. Educating family members on stroke may be even more important among Vietnamese Americans because elders often live in multigenerational households.

## Limitations

The main limitation of this study is the design lacked a control group and consequently, further testing of the intervention is warranted. The vignette tool, used to measure pre and post intervention stroke knowledge and action, also served as a key component of educational intervention which may have artificially increased scores for these variables at post-test. Some other limitations relate to the translation of the tool to Vietnamese. According to the Flesch-Kincaid Readability Grade, the vignette tool and the behavioral intent survey had appropriate health literacy readability levels of grades 5 and 5.9 respectively. However, due to the lack of a reading level appraising formula in Vietnamese, the reading level of the translated version could not be verified.

Another limitation of this study was the translated vignette tool needs more validity testing. Although all the social situations in the vignettes are culturally applicable to Vietnamese Americans, because the tool was designed for use and validated in the African American population, certain potential stroke actions such as visiting an acupuncturist or a traditional healer were not included on the tool.

## Implications for Practice

A brief education intervention has the potential to positively impact stroke recognition and behavior intent to call EMS in the Vietnamese American population. Nurses play a pivotal role in patient education and disease prevention. Incorporating the FAST message and stroke vignettes into patient education, especially for high-risk stroke patients and their family, has the potential to reduce stroke delay time. Health care providers should stress the importance of calling EMS for stroke signs and symptoms rather than seeking care at a provider office, as this latter behavior contributes to the pre-hospital stroke treatment delay. Providers should also provide stroke education, utilizing existing tools such as video-players that are often available in patient waiting rooms. The stroke vignettes could easily be converted to multi-media presentations to be played for patients in waiting rooms [16]. Because the FAST message and stroke vignettes have shown effectiveness in improving stroke recognition and behavior intent to call EMS, nurses can utilize them as teaching materials. If time permits, role playing of the vignettes after FAST presentation might be more effective in improving participant's stroke self-efficacy, which directly influences the behavior intent to call EMS.

## Conclusions

Pre-hospital stroke treatment delay in the ethnic minority community in general and the Vietnamese American community in particular could be reduced with culturally and linguistically appropriate community-based education. Nurses and health care providers can play a vital role in reducing pre-hospital stroke treatment delay if they target not only stroke recognition knowledge but also behavior intent to call EMS. Lastly, healthcare providers should include both high-risk stroke patients and potential bystanders in their stroke education.

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**Research Article**        **Open Access**

# Effects of Comprehensive Care to the Psychological Status and the Eyesight Recovery of the Patients with Vitrectomy

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## Abstract

**Aims and Objectives:** To determine the effects of the comprehensive care to the psychological status and the eyesight recovery of the patients with vitrectomy.

**Background:** Vitrectomy is a routine clinical practice which was widely used to treat multiple eye diseases. However, due to the anatomic location of the vitreous body and the operational risk, patients tend to develop psychological disorders, which would negatively affect the therapeutic effects.

**Design:** 84 cases of the patients who had the vitrectomy operation in our hospital during the period of February 2015 to February 2017 were randomly divided into control group (n=42) and experimental group (n=42). The control group accepted the routine care during and after the operation, and the experimental group accepted the comprehensive care in addition to routine care.

**Methods:** The effects of comprehensive care were evaluated by comparing the psychological status of the patients and the extent of the eyesight recovery between the two groups.

**Results:** Both the self-rating anxiety scale (SAS) and the self-rating depressive scale (SDS) of the experimental group are significantly (p<0.01) lower than the control group. The eyesight recovery efficiency in experimental group (92.86%) is significantly higher (p<0.05) than control group (76.19%). The incidence of postoperative complications in experimental group is significantly lower (p<0.05) than control group, and the average length of stay in hospitals in experimental group is significantly shorter (p<0.01) than control group.

**Conclusions:** There were significant beneficial effects of the comprehensive care in patients with vitrectomy. Comprehensive care could effectively improve the psychological statues of the patients and enhance their eyesight recovery.

**Relevance to clinical practice:** Comprehensive care in patients underwent surgery improve patient's recovery and make a difference in disease outcomes. This could potentially be applicable to most of the clinical practices.

**Keywords:** Vitrectomy; Comprehensive care; Psychological statue; Eyesight recovery

## Introduction

The vitreous body is the clear gel that fills the space between the lens and the retina of the human eyeball. It plays important role in refractive properties of the eye and helps to protect the retina. Dysfunction of vitreous body would affect the light-path, leading to blurred vision, vitreous flashes or floaters, and sometimes complete loss of eyesight [1]. Vitrectomy [2] is a surgery to remove some or all of the vitreous humor from the eye, to restore the light path and the eye function. It is now a routine clinical operation for various eye disorders such as diabetic eye disease (diabetic retinopathy) [3-5], retinal detachments [6-10], macular hole [11-13] and macular pucker [14,15]. However, due to the anatomical location of the vitreous body and the complexity of the operation, the patients tend to develop various psychological disorders before and upon the operation, which would negatively affect the therapeutic effects and their eyesight recovery.

In order to improve the patient's psychological statue and facilitate the recovery of the eyesight, we applied comprehensive care (CC) to patients who underwent vitrectomy, and compared the outcomes of patients who received CC to those received routine care (RC) only, by evaluating the their psychological statues, the rate of eyesight recovery, the incidence of postoperative complications and the average length of stay in hospitals.

## Background

Comprehensive care represents the basic approach of managed care with the overall objectives of improving patients' physical and psychological functions, reducing hospitalization and achieving better clinical outcomes [16]. This approach has been widely applied in

geriatric patients with medical problems such as hip fracture [17-19], resulting to low rates of major morbidity and mortality, short stay and acceptable functional outcomes [18]. Participants in the comprehensive care group had better self-care ability and less risk of depression [19], suggesting that patients benefit more from the comprehensive care program than from interdisciplinary care and usual care. CC was also applied to patients with cystinosis [20], representing a support tool for health professionals who take care of the patients. An action research project had been designed and evaluated to identified areas of care practice needing further development for patients undergoing vitreoretinal surgery to enhance the recovery [21,22], however, few studies further described the effects of comprehensive care in patients underwent vitrectomy.

Self-rating Depression Scale (SDS) and Self-rating Anxiety Scale (SAS) [23,24] were self-evaluation survey designed to quantify the depressed and anxious status of the patients. The reliability of the SDS and SAS has been validated and widely used all over the world. In this study, we adapted these two scales to evaluate the psychological status of the patients, before and after the comprehensive care.

## Methods

### Ethical issues

The study protocol was approved by the ethical review board of ZhouKou central hospital (ERB 2016-0061). Written consents were obtained from all patients.

### Patients selection criteria

84 Patients undergone vitrectomy in our hospital from February 2015 to February 2017 were randomly divided into experimental group (n=42) and control group (n=42). After general examinations including the eye pressure measurement, eyesight examination, ultrasound, funduscopy and split lamp examination, patients with no surgical contraindication were selected. Patients with following conditions: other existing diseases which affect their eyesight; severer coagulation disorders; brain injury; neurological disorders; hepatorenal dysfunction; surgical contraindications; and those unaware of this study or refused to participate the research, were excluded from the study. All patients are aware of this study and gave the written form of consent.

General information of the patients in each group was listed in Table 1. There were no statistical significant differences in terms of the age, disease period between the two groups (p>0.05). Patients in experimental group accepted the comprehensive care while patients in control group received routine care.

| | Control group | Experimental group | P value |
|---|---|---|---|
| Male (n) | 24 | 25 | N.A |
| Female (n) | 18 | 17 | N.A |
| Age (range, years) | 26-66 | 28-68 | >0.05 |
| Age (average, years) | 45.32 ± 3.57 | 45.67 ± 3.52 | N.A |
| Right eye disease (n) | 26 | 25 | N.A |
| Left eye disease (n) | 16 | 17 | N.A |
| Diabetic retinal disease (n) | 15 | 14 | N.A |
| Vitreous haemorrhage (n) | 11 | 12 | N.A |
| Retinal detachment (n) | 5 | 6 | N.A |
| Macular degeneration (n) | 7 | 6 | N.A |
| Eye trauma (n) | 4 | 4 | N.A |
| Course of disease (years) | 0.7-12 | 0.7-13 | >0.05 |
| Average course of disease (years) | 7.72 ± 1.14 | 7.78 ± 1.16 | N.A |
| N.A: not applicable, P value: >0.05, not significant | | | |

**Table 1:** General information of the patients in each group.

### Surgical methods

Surgical strategy was determined according to examination results of each individual before the surgery. Anti-blood glucose, anti-blood pressure and anti-infective procedures were given before surgery. Patients in both groups were locally anesthetized by retro-bulbar injection and standard 3-incision pars plana vitrectomy performed. For patients with simple vitreous haemorrhage, appropriate photocoagulation was applied to the newly formed blood vessels; for those with proliferative retinal abnormality or with the tendency of retinal detachment, combined gas or silicon oil filling; heavy water, photocatalytic applications, gas-liquid exchange, stripping or other surgical methods were applied; for patients with large retinal detachment, combined application of silicone oil filling, photocoagulation and heavy water were used.

### Care

The control group received routine care before, during and after surgery. The routine care includes: routine examination, statue care, distribution of the medicine and management of the complications. The experimental group received comprehensive care in addition to the routine care. The comprehensive care was performed as followed:

### Pre-surgery care

Reinforced pre-surgery communication between the nurses and the patients. The psychological statue of the patient was evaluated and the corresponding psychological treatment was performed.

Health education was performed on patients regarding to their disease, the important aspects of the surgery, and the routine care, reinforcing the awareness of the patients to the treatment;

Familiarize the patients with their surgeon by increasing communication between them, in order to decrease the surgical stress.

### Intra-operational care

During the surgery, local anaesthesia was applied. Therefore the patients stayed conscious during the surgery. The nurses constantly communicated with the patients, emphasize the importance of the ordinance in the effects of the surgery, to reinforce the cooperation between the surgeon and the patients.

### Post-operational care

Inform the patients about the surgical success immediately to help them to establish their confidence for recovery. Control the light and temperature of the ward, avoid noises, and build a good rehabilitation environment.

Monitor the intraocular pressure and surgical wound continuously. Guide the patients to maintain a correct body position for smooth breathing and maintenance of intraocular pressure within the normal range.

Management of complications: Give rapid intravenous injection of mannitol for patients with headache, nausea and eye pain. For patients with more severe complications such as possible infection, inform the doctor as soon as possible.

Guide the patients with appropriate diet supplemented with protein, vitamins, dietary fiber, and trace elements after the surgery. Preferentially the meal would be easy to chew, such as semi-liquid or soft food, and in small portions, to avoid excessive chewing which would potentially increase intraocular pressure.

After being discharged from the hospital, the patients were guided to avoid violent activities or manual labor before fully recovery. In addition, long-term eye medication, the daily sitting, lying position guidance, and regularly eye test were provided to ensure the steady recovery of the patients.

### Evaluation

The psychological status of the two groups was evaluated before and after care, and the visual acuity of the two groups was measured and scored.

**Mental status assessment:** SAS and SDS scale were used to evaluate the anxiety or depression of the patients. The scores were negatively correlated with psychological status.

**Vision recovery:** After surgery, extent of the vision recovery higher than 0.3 or range from 0.1 to 0.3 were considered as effective, lower than 0.1 was regarded as invalid.

### Statistical analysis

The data were analyzed using SPSS20.0 statistical software. s was used to show the numeric data, and compared using student t test. Percentage was used to show the category data, using chi square test. P<0.05 means that the difference was statistically significant.

### Results

### Psychological status:

Before the care, the SAS scores of the control group and the experimental groups is 64.77 ± 5.34 (mean ± SEM, n=42) and 64.95 ± 5.36 (mean ± SEM, n=42), there is no statistical significant differences between the two groups (p>0.05); the SDS scores of the control group and the experimental groups is 66.25 ± 4.18 (mean ± SEM, n=42) and 67.05 ± 3.45 (mean ± SEM, n=42), there is no statistical significant differences between the two groups (p>0.05). After the care, the SAS scores of the control group and the experimental groups is 54.92 ± 4.32 (mean ± SEM, n=42) and 46.78 ± 3.67 (mean ± SEM, n=42), respectively, there is statistical significant differences between the two groups (p<0.001); the SDS scores of the control group and the

experimental groups is 56.05 ± 3.17 (mean ± SEM, n=42) and 47.69 ± 2.97 (mean ± SEM, n=42), there is statistical significant differences between the two groups (p<0.001).

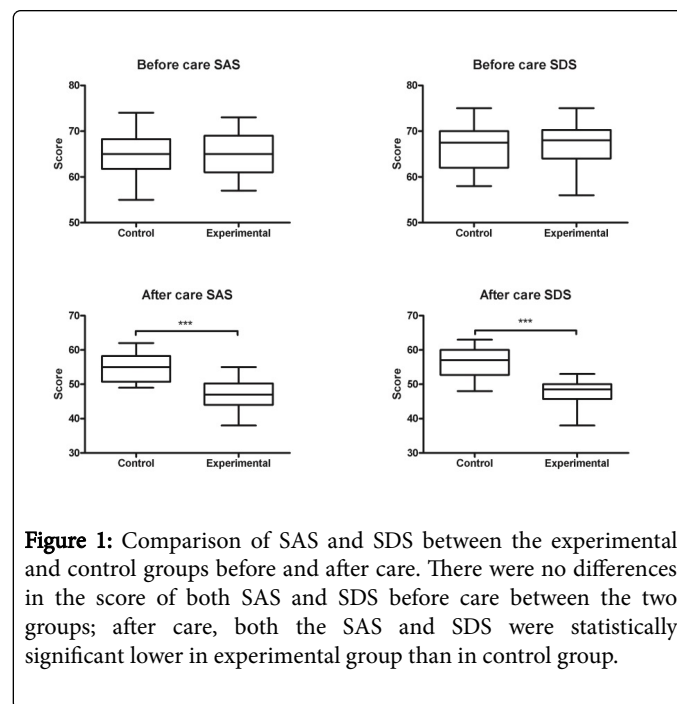The SAS and SDS scores of the control and experimental group were shown in Figure 1 and Table 2.



**Figure 1:** Comparison of SAS and SDS between the experimental and control groups before and after care. There were no differences in the score of both SAS and SDS before care between the two groups; after care, both the SAS and SDS were statistically significant lower in experimental group than in control group.

| Group | Before care | | After care | |
|---|---|---|---|---|
| | **SAS** | **SDS** | **SAS** | **SDS** |
| Control (n=42) | 64.77 ± 5.34 | 66.25 ± 4.18 | 54.92 ± 4.32 | 56.05 ± 3.17 |
| Experimental (n=42) | 64.95 ± 5.36 | 67.05 ± 3.45 | 46.78 ± 3.67 | 47.69 ± 2.97 |
| t | 0.154 | 0.957 | 9.297 | 12.472 |
| P | >0.05 | >0.05 | <0.001 | <0.001 |

**Table 2:** Comparison of the SAS and SDS scores of the two groups (Mean ± SEM

### Eyesight recovery

As shown in Table 3, after surgery, in control group, the number of patients whose eyesight improvement >0.3 is 9 out of 42 (21.32%), and the number of patients whose eyesight improvement between 0.1 and 0.3 is 23 out of 42 (54.76%), the rate of effective eyesight recovery (>0.1) in control group is 76.19%. In experimental group, the number of patients whose eyesight improvement >0.3 is 22 out of 42 (52.38%), and the number of patients whose eyesight improvement between 0.1 and 0.3 is 17 out of 42 (40.48%), the rate of effective eyesight recovery (>0.1) in experimental group is 92.86%, which was significantly higher (p<0.05) that of control group.

| Group | Corrected eyesight >0.3 | Corrected eyesight 0.1-0.3 | Corrected eyesight <0.1 | Efficiency |
|---|---|---|---|---|

| | n% | n% | n% | |
|---|---|---|---|---|
| Control group (n=42) | 921.43% | 2354.76% | 1023.81% | 3276.19% |
| Experimental group (n=42) | 2252.38% | 1740.48% | 37.14% | 3992.86% |
| $\chi^2$ | - | - | - | 4.459 |
| P | - | - | - | 0.05 |

**Table 3:** Eyesight recovery in two groups of patients.

### The incidence of postoperative complications and the average length of stay in hospitals

After the surgery, in control group, there were 3 patients have glaucoma, 3 patients have corneal edema, 2 patients have sympathetic ophthalmia and 2 patients have cataract. The overall incidence of complications is 26.19% (11/42). In experimental group, after surgery, the incident of glaucoma, corneal edema, sympathetic ophthalmia and cataract is 1, 1, 1 and 1 out of 42, respectively. The overall incidence of complications is 9.52% (4/42). There were statistically significant differences between the two groups (p<0.05).

The average length of stay in hospitals of experimental group (10.17 ± 2.63 day) is statistically shorter (p<0.01) than that of control group (15.24 ± 3.82 day), as shown in Table 4.

| Group | Incidence of postoperative complications [n (%)] | Average length of stay in hospitals |
|---|---|---|
| Control groupn=42 | 1126.19 | 15.24 ± 3.82 |
| Experimental groupn=42 | 49.52 | 10.17 ± 2.63 |
| $x^2$/t | 3.977 | 5.651 |
| P | 0.046 | 0.003 |

**Table 4:** The incidence of postoperative complications and the average length of stay in hospitals.

### Discussion

Vitrectomy is a highly precise and complicated ophthalmic surgery, which involves removing the vitreous gel using small tools followed by the treatment of the accompanied eye problems. At the end of the surgery, an oil or gas bubble may be injected into the eye. It is highly effective at improving vision, symptoms, contrast sensitivity, and quality of life [25]. However, like all other surgery, vitrectomy has risks. They include: eye infection, bleeding in the eye, high or low eye pressure, cataract, retinal detachment, even loss of vision [26-29]. In addition, there were multiple factors which would affect the outcomes of the surgery. Thus the perioperative care needs to be strengthened to improve the eyesight recovery of the patients.

Our current study showed that, 1) the SAS score, SDS score, 2) the incident of the complications, and 3) the in-hospital period were all significantly lower in experimental group which received comprehensive care than the control group which only receive the routine care. Furthermore, 4) the eyesight recovery of the experimental group is significantly more effective than the control group. This indicates that in patients undergoing vitrectomy, implementation of comprehensive care can effectively improve the patient's mental state and enhance the recovery of vision. This is due to the following reasons. The pre-operational and intra-operational mental care and health education given in the form of comprehensive care diminished the anxiety, depression, tension, fear and other adverse psychological changes of the patient, and reduce the operational stress. At the meantime, the comprehensive care ensured the awareness of the patient to the disease and the surgery, and helped them to gain the confidence of surgery.

Preoperational communication between the patient and the surgeon can effectively reduce the fear caused by unfamiliar emotions, which in turn mitigated the surgical stress on the patient, and enhance the surgical effects.

Postoperative psychological counselling can facilitate the rehabilitation of the patients and reduce their surgical pain and anxiety. Coordination between the nurse and the patients would reinforce the effect of care and reduce the risk of complications. Proper intervention and training can effectively maintain the intraocular pressure within a relatively normal range, to avoid complications caused by abnormal intraocular pressure. A balanced diet promotes the absorption of nutrition by the body [30,31], improves the wound healing and visual recovery. It is critical to control the eating speed and food intake, as excessive chewing might affect the patient's intraocular pressure and cause un-necessary complications. The health guidance given to patient after discharging from the hospital prevents the negative effects of the discontinuous of the care and the inappropriate medication.

### Conclusion

In summary, there were significant therapeutic benefits in patients with vitrectomy receiving comprehensive care. The comprehensive care could effectively improve the psychological statues of the patients and enhance their eyesight recovery.

### Relevance to clinical practice

Comprehensive care can be applied to patients underwent vitrectomy to improve their psychological statues and achieve better clinical outcomes.

### Acknowledgement

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# Understanding Patient Reluctance to the Remote Monitoring of Cardiac Implantable Electronic Devices

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## Abstract

**Objective:** To understand patient's reasoning for declining remote monitoring of their cardiac device. Is a patient more likely to proceed with remote monitoring if they are aware of the benefits and limitations of remote monitoring?

**Background:** It is now possible to assess pacemakers and defibrillators remotely through the use of personal monitors. Remote monitoring has many evidence based benefits for the patient and device clinic, and is now an integral part of the standard of medical care for CIED patients in Canada. Despite this, a minority of patients decline remote monitoring. We have a poor understanding as to why this might be, with little research in contemporary literature looking at this area.

**Methods:** A descriptive survey, questionnaire study was used having both quantitative and qualitative features. This allowed for the primary reasons for patients declining remote monitoring to be concisely identified, using thematic analysis. It assessed a patient's knowledge of the benefits of remote monitoring, looking for a relationship between this and likelihood to proceed with remote monitoring.

**Results:** Loss of human contact appears to be a predominant concern, confirming patient's reported experiences in Ottenberg's study and as suggested in the 2015 HRS statement. Privacy and security fears were also highlighted. Surprisingly fear of technology, in a mainly elderly population, was rarely mentioned. Half of the participants in this study stated that they would be likely to proceed with remote monitoring after having read the evidence based benefits for its use.

**Conclusions and Recommendations:** Patient acceptance of remote monitoring can be improved by educating them to its benefits and limitations. To alleviate privacy concerns, device companies should look at the feasibility of having their remote monitoring servers physically based in Canada.

**Abbreviations** CIED-Cardiac Implantable Electronic Device; CHRS-Canadian Heart Rhythm Society; HRS–Heart Rhythm Society; ICD–Implantable Cardioverter Defibrillator; RM–Remote Monitoring; USFDA–United States Food and Drug Administration

**Keywords:** Remote monitoring; Cardiac devices; Pacemakers; ICDs; Telemedicine; Internal cardioverter defibrillator

## Introduction

The first pacemaker was implanted in 1958 and since then the use of Cardiac Implantable Electronic Devices (CIEDs) has grown rapidly. It is now possible to assess pacemakers and defibrillators remotely using personal monitors. This information is sent to a secure server to which the patient's device clinic has access *via* a standard web browser. Remote monitoring has many benefits for the patient and device clinic and is now the standard of care for CIED patients in the United States and an integral part of the standard of medical care for CIED patients in Canada [1-3].

Despite the evidence based benefits to the patient, and the recommendation of remote monitoring by the national Heart Rhythm Societies, a minority of patients decline remote monitoring. We have a poor understanding as to why this might be, with little research in contemporary literature looking at this area. Freeman clearly articulates the need for research as to why patients are declining remote monitoring … "*Additionally, research must be conducted to better understand patient … impediments to adopting remote monitoring and methods to address these barriers*"[4].

A mixed methods questionnaire was designed to reveal, in their own words, why patients had previously declined monitoring. It was also designed to assess patient's knowledge of the benefits of remote monitoring. Patient's concerns and knowledge gaps could then be addressed through consistent, evidence informed, on-going education, commencing before device implant.

## History of remote monitoring

Remotely obtaining information from a patient's cardiac device is not a new concept in pacemaker follow-up. In 1971, trans-telephonic monitoring (TTM) was introduced to supplement in clinic visits [5]. The monitor is connected to an analogue phone-line and electrodes are placed on the patient. An ECG tracing is sent, with a magnet applied, and then not applied, to the pacemaker. The information gleaned from TTM is limited.

The birth of modern digital remote monitoring was 2001 when Biotronik released their Home Monitoring° system in Europe. In 2002, in the United States, Medtronic released their Carelink° monitoring system. All five major cardiac device companies now have a remote monitoring system and remote capable pacemakers and ICDs. It was now possible to interrogate a pacemaker or ICD and gather all the same information that would usually have required an in-clinic visit to obtain.

However, true remote patient monitoring came with the advent of wireless ICDs and pacemakers. Intermittent remote interrogations were now replaced by true remote monitoring of devices. Once set-up these monitors required no physical interaction with the patient. The monitor is typically placed within 4 m of where the patient sleeps, with transmissions usually sent during the night. The monitor will work anywhere in the world that has mains electricity and cellular or Wi-Fi connectivity. The collected information is sent encrypted to servers maintained by the device company. The patient's device clinic has access to this information via a standard web browser.

### The evidence for the benefits of remote monitoring

Over time the benefits of remote monitoring to both the patient and the device clinic became apparent. Remote monitoring is a solution to the problem of clients who live long distances from the specialised device clinic. Historically this has been an issue for Canadian centres, with some patients in Arctic Canada living over two thousand Kilometres from their device clinic. However, the benefits to remote monitoring apply to all patients irrespective of their distance from the device clinic. Numerous prospective, retrospective, and randomized clinical trials showed positive patient outcomes. Remote monitoring has many benefits for the patient including reduced clinic visits, early warning of battery, device, or lead problems, and earlier notification of dangerous heart rhythms or other changes in cardiac status [6-10]. A reduction in inappropriate shocks has also been shown for patients on remote monitoring [11]. Some studies have shown a mortality benefit to patients on remote monitoring [12,13] though the evidence is not conclusive [14]. Improved clinic efficiency, reduced cost to patient and health care system, and improved quality of life were also shown [9,15-17] (Figure 1).
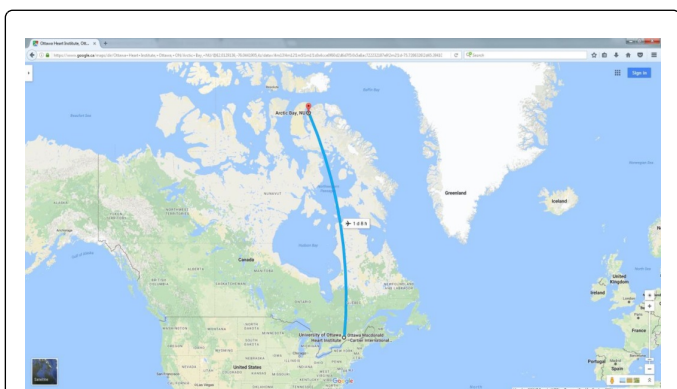


**Figure 1:** Distance travelled by some patients for a device check.

### Methods

From the literature review, no prior research was identified specifically looking at patients who had previously declined remote monitoring. Due to the number of patients identified and the initial nature of the primary question, a descriptive survey, questionnaire study was chosen. As the question and hypothesis were very narrow and focused, a previously used and validated questionnaire was not available. The questionnaire has both quantitative and qualitative features and allowed for the primary reasons why patients are declining remote monitoring to be concisely identified [18]. A format with statements using tick box categories was chosen. The advantages to this format are a questionnaire that is easy to understand and relatively quick to complete. It also generates data suitable for non-parametric statistical analysis and display of descriptive statistics [19]. It assessed patient's knowledge of the benefits of remote monitoring, looking for an association between knowledge and a patient's likelihood of accepting.

To answer the question as to why some patients decline remote monitoring, it was first necessary to identify the patients who had previously declined at an academic Heart Institute in Southern Canada. The nursing clinic notes, on the Paceart clinic database, of patients with newly implanted Medtronic devices from April 2015-October 2016 were manually checked. From this, 45 patients were identified with a documented decline of remote monitoring. It is likely some patients declined and it was not documented. However, the sample is as comprehensive as could be reasonably obtained. Of these 45 patients, 13 had previously stated, as documented on the hospital electronic health record system, that they did not wish to be contacted for research purposes (Figure 2).
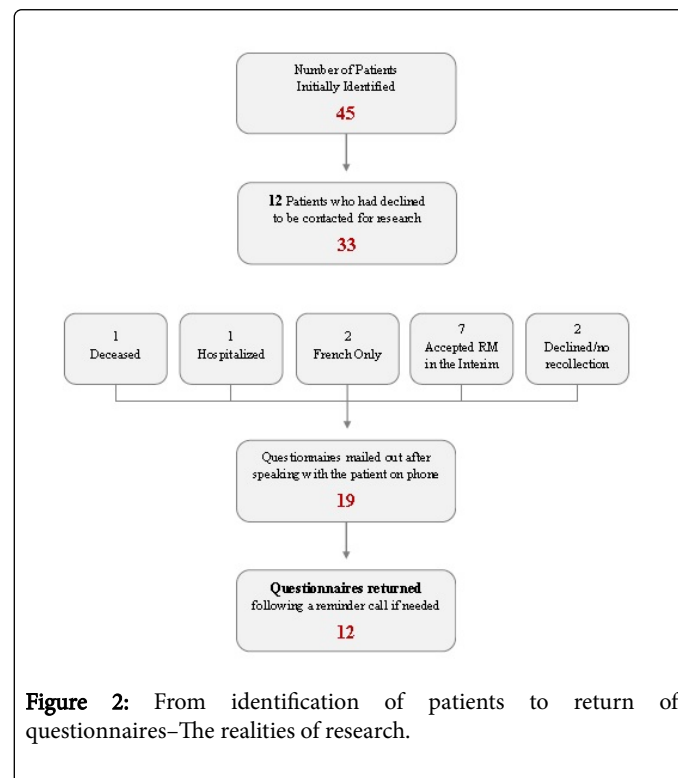


**Figure 2:** From identification of patients to return of questionnaires–The realities of research.

### Results

A total of 19 questionnaires were mailed out. The patients were called before and after mailing, and twelve questionnaires were returned, one of which was returned blank. Of those questionnaires completed nine of the participants were male and two female. The

youngest participant was 58 years old with most respondents more than 70 years old.

The questionnaires returned offer some enlightening insights into patient's reasoning for declining remote monitoring. In their own words participants shed some light on the main focus of this study, namely understanding patient's reluctance to remote monitoring. These themes will be grouped under headings consistent with the three possible reasons for declining remote monitoring, namely technology, privacy concerns, and loss of human contact, as posited by the HRS3, and Ottenberg's 2 themes of perspectives and perceptions of usefulness.

### Part one

*"What was your main reason, or reasons, for declining remote monitoring?"* Technology:

One participant wrote …*"fear of the unknown (technology)"*, an area previously highlighted in the HRS3 position statement on remote monitoring. Many device patients are elderly and may have greater challenges with newer technology. It must be said that the device companies have done a great job in making the monitors as simple as possible. Following a 2-step process taking two minutes, no further patient interaction is required. It will be important to let the patient know that the device company, and their device clinic, will help them throughout the set-up process.

Another Participant, who described themselves as …*"a very nervous person"*, wrote of their belief that the monitor would increase their level of stress. They described not being technically inclined, and not needing the perceived burden of stress. One participant wrote of feeling uncomfortable with any new device such as a remote monitor because they …*"do not have a hand-held device or a cell phone"*.

### Perspectives and perceptions of usefulness

*"We do not see things as they are. We see things as we are"* [20].

*"I do not want to be constantly reminded that I have an implanted device, particularly since it is not necessary for normal daily living,"* is how one participant describes their perception of the usefulness of a remote monitor. This same participant also spoke of not wanting another piece of equipment in their bedroom taking up space.

Often what we think a patient hears, and what the patient actually hears, are two very different things. Internet access is not required for cellular remote monitoring and is not mentioned in-clinic as a prerequisite for monitoring. Despite this a participant writes that …*"I had no access to the internet and I was told I would need access. My son has moved back home, he has a computer so I could now participate"*. Another Participant wrote *"not sure if I understand what remote monitoring means, if it will affect me in any way."* A further participant wrote that they did not remember declining remote monitoring. One participant called the clinic after receiving the questionnaire to report having no recollection of the study or declining remote monitoring. This was after the study had being explained fully during a telephone conversation. The questionnaire was returned uncompleted with only …*"I do not remember the operation. I do not feel the implant at all. I feel great and do not know it is there."* It is difficult to read these replies without feeling a sense of sadness at the discontinuity of what we say as health care professionals and what our patients hear and perceive.

### Loss of human contact

One participant succinctly highlighted loss of human contact as a concern, writing of a …*"desire to be seen/checked by real competent doctors/nurses to whom I can address/questions/concerns."* Another participant wrote that they liked being seen by a cardiologist every 6 months. One participant articulates their feelings quite clearly …*"I enjoy the one on one with the staff at the defibrillator clinic. Any of my questions or concerns are always answered and totally explained. I was a little concerned about losing this."* Along the same lines another participant writes …*"I still prefer physically attending and having personal contact."* Similarly, another participant wrote …*"I prefer one on one anyway".*

Loss of human contact was a predominant theme for patient's reasons for declining remote monitoring. Another participant perceived they would lose the …*"ability to travel to the* Heart *Institute for monitoring; ability to discuss any issues with appropriate personal on a one to one, face to face basis."* They saw the monitor as impersonal, and they would miss the ability to interact with appropriate personnel …*"remote monitoring, while advantageous, lacks the personal interaction which is beneficial to the patient."*

It is important to reassure the patient that they will still attend clinic at least annually, and remote monitoring complements, not replaces usual care. As highlighted in Petersen's study [21], with 84% of patients requesting more information after a routine transmission, it is vital to engage and inform the patient in their remote monitoring follow-up.

In a busy device clinic, we can sometimes forget the importance of giving the patient time and space to comprehend and digest the information they are given. This was emphasized by one participant who wrote …*"the questions were asked …"at such speed that I had difficulty in total comprehension. Therefore, I choose the safety of continuing to deal with real people".*

### Privacy and security

For those caring for patients with CIEDs, issues surrounding the security and privacy of patient's medical information is currently at the forefront. In regards to privacy, there is a concern with remote monitoring and the collection of personal medical information, that this information is no longer located at the point of care [1].

As to why they declined remote monitoring one participant wrote …*"I object to having my personal medical information stored on a server in the USA."* In the further comments section the same participant wrote …*"Also, we are now in the era of President Donald Trump!"*

Regarding the security of remote monitoring one participant simply wrote …*"I am declining remote monitoring for security reasons."* Unfortunately, the participant did not expand on their reasoning. This highlights the possible inferiority of questionnaires, as compared to in-depth interviews, for obtaining more detailed information on certain topics. Question seven informs that the device information is transmitted encrypted and stored safely on secure servers. Despite this a participant wrote …*"Encrypted information is hacked into on a regular basis."*

### Part Two

Questions 1-8 are evidence informed statements that summarize some of what we know at present about remote monitoring. The

questions were designed to assess a patient's knowledge of remote monitoring and to see if this was associated with an intention to proceed with remote monitoring (Question 9). Two participants did not complete part two and one participant partially completed. Nine participants answered all of questions 1-8 in part two (Figure 3-11).

This research suggests that the three main reasons given by patients for declining remote monitoring are loss of human contact, privacy and security concerns, and fear of technology. Loss of human contact appears to be a predominant concern, confirming patient's reported experiences in Ottenberg's study [2]. Surprisingly fear of technology, in a mainly elderly population, was rarely mentioned. This study also highlighted that there is much room for improvement when informing patients of the benefits of remote monitoring. Half of the participants in this study stated that they would be likely to accept remote monitoring after having read the evidence based benefits for its use.
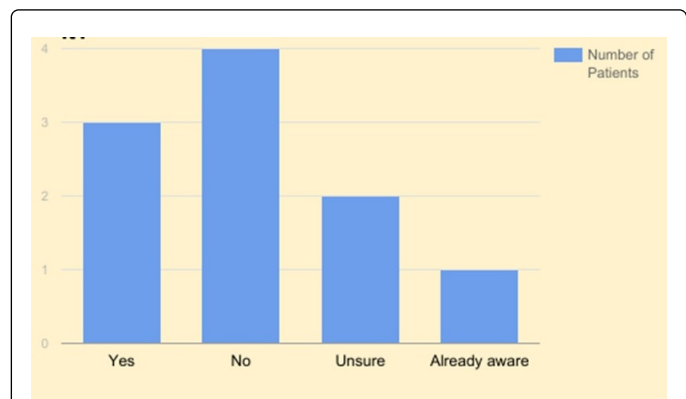


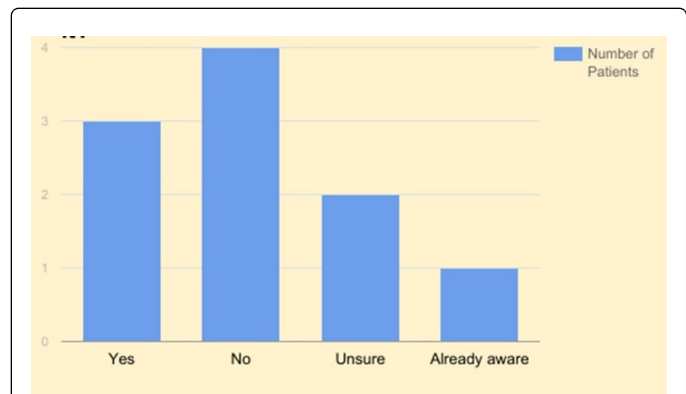**Figure 3:** Would knowing RM is the standard of care make it more likely you would choose it?



**Figure 4:** 98% of patients stay on RM. Would knowing this make it more likely you would choose RM?
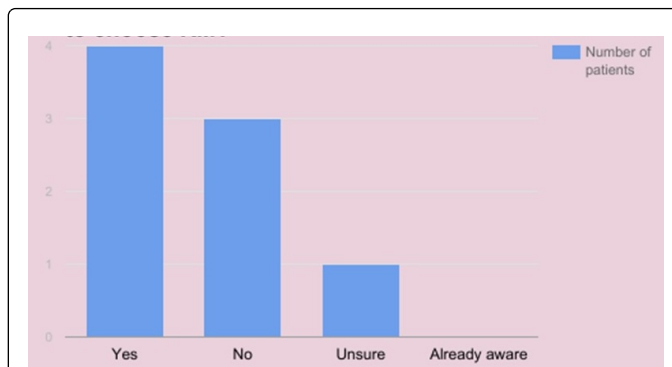


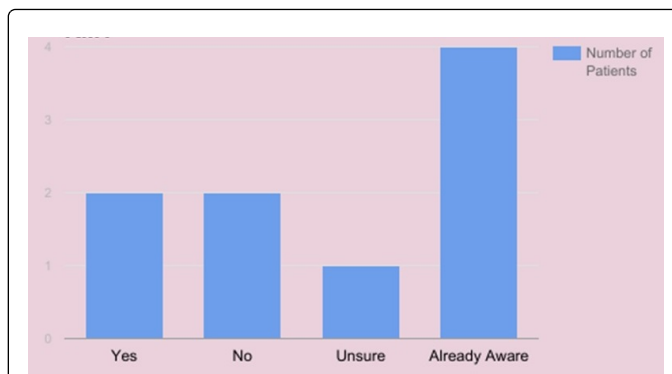**Figure 5:** RM may reduce inappropriate shocks. Would knowing this make you more likely to choose RM?



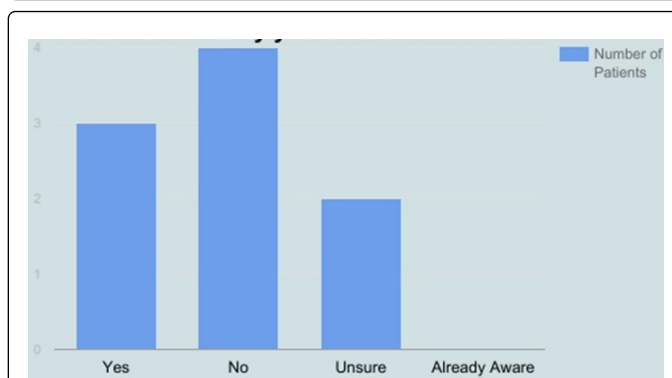**Figure 6:** There is no cost for RM. Would knowing this make it likely you would choose RM?



**Figure 7:** RM requires no computer experience and takes 2 mins to set-up. Would knowing this make it more likely you would choose RM?
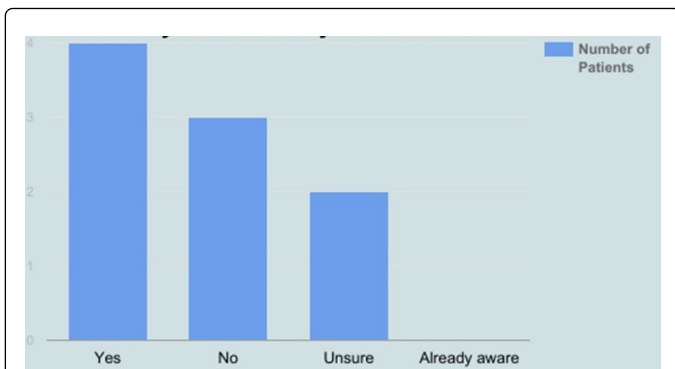
**Figure 8:** RM gives early warning of low battery, device issues and lead problems. Would this make you more likely to choose RM?
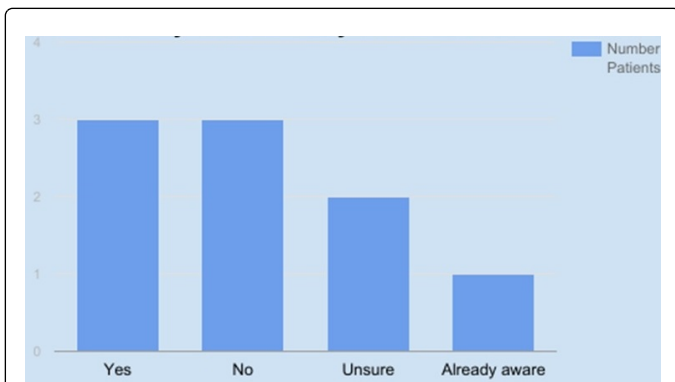


**Figure 9:** Your data is sent encrypted and securely and may only be read by the clinic. Would this make you more likely to choose RM?
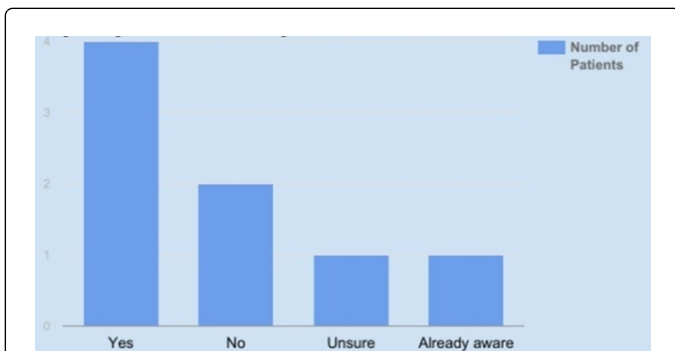


**Figure 10:** RM complements not replaces usual care. Patients must still be seen at least yearly in clinic. Likely to choose RM?



**Figure 11:** Considering what you may have learnt in the previous questions, if offered remote monitoring again would you be likely to accept?

## Limitations

This study has several limitations. Due to time constraints French only speaking patients were not enrolled. Also, no First Nation patients from Northern Canada were identified in the initial patient search. It is unclear as to why this is. Experience has shown that even when a patient in Arctic Canada has cellular connectivity other issues frequently result in the discontinuation of remote monitoring. Understanding the perspectives and experience of Northern patients, and how to best help them receive person centred and up to date care for their cardiac devices, is an area for further study.

Readers should interpret the findings with caution due to the small number of completed questionnaire. Nevertheless, this research provides a descriptive account, in their own words, as to why patients may decline remote monitoring.

## Discussion

### Loss of human contact

"*Remote monitoring, while advantageous, lacks the personal interaction which is beneficial to the patient*." This was one answer given by a participant for declining remote monitoring. This personal touch is also beneficial to the nurse and vital for therapeutic care. A concern is, as remote monitoring becomes a bigger aspect of the work day and one begins to lose the interaction with the patient in-clinic, will one still be nursing?

It is important to remind the patient that even when on remote monitoring they continue to be closely followed by their device clinic and must be seen in person at least yearly. It is likely that a change to remote monitoring is more difficult for patients who have become familiar with being seen in clinic every 6 mon. It is recommended that the concept of remote monitoring is introduced by the physician at the patient's initial pre-implant visit. The physician could briefly mention the benefits and limitations, and state that remote monitoring is the standard of care and recommended by the CHRS. The patient will then be started on remote monitoring at their first post-implant visit. A combination of in-clinic and remote monitoring then becomes the norm for the patient.

## Privacy and security

A participant wrote of their objection to having their personal medical information stored on servers in the USA. In 2012, the Medical Advisory Secretariat (MAS) of Ontario published an evidence based, systematic review of the cost-effectiveness and safety of remote monitoring of cardiac devices [22]. The MAS review highlighted concerns regarding the upkeep of the infrastructure and the fact that the systems were managed by the device manufacturers. Historically, any information concerning a patient and their device would remain at the hospital at which the patient was implanted and followed. However, with remote monitoring the information is now held at distance from the device clinic. Sometimes, as is the case in Canada, this patient medical information may be stored in a different country, such as the USA. It is technically possible that due to the US Patriot Act, a Canadian's health information, stored on servers in the USA, could, without the client's consent, be viewed by people outside of their circle of care. Concern regarding the storage of sensitive information outside Canada is not unique to remote monitoring. Google Inc. has recently announced their first Canadian "*cloud region*" in Montreal [23]. This will allow sensitive data to stay within Canada, allowing organizations that deal with sensitive data or are heavily regulated, such as financial institutions or the health care sector, to stay clear of the US Patriot Act.

Worldwide hundreds of thousands of people are now remotely monitored. There have been millions of remote transmissions sent and received. At present, there is no recorded case, in the medical literature, of a patient's information having been compromised in this way. This is an extremely unlikely scenario, but one nevertheless, that the client needs to be aware of for informed consent to take place. Again, it must be stressed that only a tiny part of a patient's medical information is transmitted and stored remotely, namely minimal demographics and their cardiac device programming and functioning. At present the benefits of remote monitoring far outweigh the very minimal privacy risks associated with having the information stored outside the hospital's jurisdiction [24].

One participant wrote that they declined remote monitoring for security reasons. Though only briefly mentioned in the literature, the security of radio-frequency enabled cardiac devices and their susceptibility to "*hacking*" is a topic becoming more widely debated. In January 2017, the USFDA issued a safety communication concerning St Jude cardiac devices and cyber security vulnerabilities [24]. It stated the USFDA had reviewed information regarding potential cyber security vulnerabilities with St. Jude Medical's Merlin@home transmitter. A firmware fix is now available. However this fix may cause more harm than, what is a present, only a potential problem [25]. These are potential issues and at no time have a patient suffered ill or had their device compromised. The USFDA has determined that the health benefits to patients from continued use of remote monitoring outweigh the risks. Patients are reminded to keep their remote monitors plugged in at all times so they can receive the necessary software updates and patches. It is important however, to remain aware that any medical device connected to a communications network may have cyber security vulnerabilities that could be exploited by unauthorised users.

## Conclusion

Pacemakers and internal defibrillators save lives and reduce suffering. These devices can now be assessed remotely. Remote monitoring has benefits for the patient, device clinic, and health care system. However, no intervention is without possible negative consequences. This study sought to understand why some patients decline a largely beneficial treatment. It was thought that educating patients to the evidence based benefits of remote monitoring may increase their likelihood of proceeding with remote monitoring.

In their own words participants shared their concerns, perceptions, and fears regarding remote monitoring. Loss of human contact was a primary concern. Issues concerning the security of remote monitoring and potential loss of privacy were highlighted. The technological aspect of remote monitoring negatively affected a minority of patients.

The secondary objective of the study, was to assess patient's knowledge of the benefits of monitoring, and if this may be related to acceptance. From the answers, it was clear that patients were not aware of the evidence based benefits of remote monitoring. Half of the patients, after reading of the benefits, would now be likely to proceed with remote monitoring.

## Recommendations

The following evidence informed recommendations are made:

-Patients are to be briefly introduced to the concept of remote monitoring, by their physician, at the pre-implant visit if possible. The seed is planted.

-A clear and concise information and FAQ sheet explaining the benefits and limitations of remote monitoring is to be included with the device guide for patients.

-At the first post implant visit consent for remote monitoring is obtained following an overview of the limitations and evidence based benefits. Patients are informed they will be followed by a combination of in clinic and remote visits. As this will be their norm a perceived loss of human contact is less likely to be felt.

-The device companies are to be encouraged to consider the feasibility of having their remote monitoring servers physically based in Canada.

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# The Association between Dietary Diversity with Shift Work among the Nurses

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## Abstract

**Background:** Nutrition is related to different health problems. Working in shifts has been identified as one of the factors associated with overweight and obesity. This study was performed to assess the association between food intake and dietary diversity with shift work among nurses.

**Methods:** This cross-sectional study was conducted on 270 nurses working in hospitals under the supervision of Tehran University of Medical Sciences. A three-day 24-h food recall was used to evaluate food intake and diversity, Blood pressure (mmhg), fasting blood glucose (mg/dl), insulin (µm/ml), lipid profile (mg/d), serum levels of cobalamin (ng/l), folic acid (pg/l) and anthropometric indices were also evaluated.

**Results:** Mean age of subjects was 35.01 ± 6.52 years. Mean dietary diversity scores (by Kant and IDDS methods) were 4.68 ± 1.18 and 5.77 ± 1.25, respectively. Among study participants the mean weight (p<0.03), waist circumference (p<0.02) and hip circumference (p<0.001) showed a significant difference across the tertiles of Kant dietary diversity score. A significant difference was seen in terms of body mass index (BMI) and WHR (p<0.03). This means that by increasing dietary diversity score, average height and weight reduces. It was also seen that by increasing the dietary diversity score, systolic blood pressure decreased and serum folic acid level increased, though these changes were statistically insignificant. In the Kant method, weight and hip circumference were increased in dietary diversity in the morning shift (p=0.05). In the FAO method, insulin and vitamin B9 (Folic acid) levels decreased by increasing dietary diversity in the morning shift. However, the serum level of vitamins B9 (Folic acid) and B12 was increased by the increment of dietary diversity in the rotating shift.

**Conclusion:** Anthropometric factors are decreased by increasing the dietary diversity. It was also found that the mean of some anthropometric indices was higher in the morning shift. Higher dietary diversity and lower carbohydrate intake was also seen in the morning shift.

**Keywords:** Dietary diversity score; Food intake; Shift work; Nursing

## Introduction

Nurses are the largest group of health care workers in organizations providing health services, and provide direct and indirect care services to patients [1]. Based on studies, factors such as lack of facilities, workload, lack of administrative support, dealing with patients or their relatives, and handling workplace violence are the most common stressors among those working in this occupation [2]. These stressors may affect nurses' dietary intakes. Disturbances in dietary intake are linked to several conditions such as obesity and overweight, high blood pressure, anemia, osteoporosis, diabetes, cancer and heart disease [3-5]. The relationship between diet and different disease has proven and so modifying people's diets can be considered as a factor for assessing and evaluating their health status [5].

According to studies, shift work is defined as work outside usual office time, and includes irregular, flexi-time, rotating and evening shifts [6]. The link between shift work and health problems is not clear, but issues with changes in sleep, as well as lifestyle and behavioral changes such as diet and smoking may be potential mediators in this regard [7].

In addition, work shifts have been identified as one of the factors associated with overweight and obesity. Research suggests that the overall risk of obesity and overweight may rise up to 39% in shift workers [8-11]. Also, a significant association has been proven between shifts and overweight and obesity in various studies [12]. Obesity is a risk factor for chronic diseases and is more common among shift workers (intermittent) than day workers [13-15]. Nurses' work plans may influence their health by increasing the risk of overweight and obesity [16].

Despite previous evidence that shift work may influence dietary intake and anthropometric measurements, there are few studies available investigating the associations of nurses' shift work with these variables. Therefore, this study aimed to assess the associations between food intake and food diversity as well as anthropometric measurements with shift work among the nurses affiliated to Tehran University hospitals.

## Methods

### Subjects

This cross-sectional study was carried out with 270 nurses (246 females, 24 males) working in hospitals under the supervision of Tehran University. All personnel who graduated in the field of nursing from these hospitals were invited to participate in the study (Response rate=80.2%). Then, the study participants were recruited based on certain inclusion criteria. The inclusion criteria included: Under 45 years old for men and under the menopausal age for women. Another factor was their willingness to cooperate in the study and complete it. Certain psychiatric disorders, such as mood disorders and depression, and endocrine disorders such as diabetes and thyroid diseases as well as other chronic disorders were exclusion criteria, as well as subjects who were taking any medication, and non-cooperation.

This study was approved by the Ethics-in-Research Commission of Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences (Ref Number: E-00172). Also, a full explanation of the purpose and process of the study was presented, along with the sampling methodology, and relevant parties were assured of the confidentiality of all information. Finally, a written informed consent was obtained from the subjects, and questionnaires were completed by an interviewer.

### Demographic characteristics

Demographic information was collected using a questionnaire and researcher interviews. Also, participants' age, gender, education level, working schedules and other related information were recorded. Iranian nursing shifts were divided into these groups: morning fix, evening, night fix, evening and night, morning and evening, rotating.

### Anthropometric and blood pressure measurements

Blood pressure was measured after 15 min of seated rest from the right arm using a digital monometer. After resting for another 5 min, BP was measured again and the outcomes of these two measurements were recorded.

Anthropometric measurements such as weight, height, waist and hip circumference were recorded for all participants. Body weight was measured to the nearest 0.1 kg using a scale with subjects wearing light clothing (i.e. no sweaters, jackets, or belts) and no shoes. Height was measured to the nearest 0.5 cm using a Secastadiometer and with shoes removed. A plastic flexible tape was used to assess waist and hip circumferences to the nearest 0.5 cm. Waist measurement was assessed at half the distance between the bottom of the xiphoid process and the umbilicus, and the hip measurement was taken at the largest anterior protrusion. The ratio between waist and hip (WHR) was computed. Body mass index (BMI) was calculated from the height and weight data; BMI=kg/m$^2$.

### Food intake and food diversity

A three-day 24-h food recall (2 working days and a holiday) was used to evaluate food intake and diversity. Then the food intake data were analyzed by Nutritionist [4]. Food diversity assessment was performed using the 2 suggested methods of the FAO (Food and Agriculture Organization) and Kant.

FAO [17] method proposes 9 food groups for evaluating individual dietary diversity score (IDDS), which is on a 0-9 scale. In this study, a score of 1 was allocated for the consumption of at least half a serving of each food group per day, while zero points were allocated for consumption lower than that. Finally, the scores obtained by these 9 groups are added together to provide the overall IDDS score. These 9 groups included: starchy foods, dark green leafy vegetables, fruits and vegetables rich in vitamin A, fruits and other vegetables, organ meats, fish, eggs, beans, seeds and nuts, and milk/dairy products.

In Kant's method [18], foods are first categorized to 5 main groups of grains, vegetables, fruits, meat and dairy products. Then the main groups are converted into 23 subgroups to provide the dietary diversity score among the groups in the food pyramid [19]. Groups were divided as listed below:

Cereals had 7 subgroups covering white bread, whole bread, wholegrain biscuits, cooked rice, cooked pasta, flour and breakfast cereals. Vegetables had 7 subgroups of vegetables, potatoes, tomatoes and its products, other starchy vegetables, legumes, yellow and orange vegetables, and green vegetables. Fruits were divided into 2 groups of citrus fruits and berries, other fruits and juices. Dairy products contained 3 subgroups: milk, yogurt and cheese & curd. Meats were divided into 4 subgroups of red meat, fish, poultry and eggs. The maximum dietary diversity score awarded to each of the five groups is 2 and ultimately, the sum of these numbers is calculated as the total score. As a result, dietary diversity score ranged from 0 to 10.

### Biochemical assessment

12 cc fasting venous blood samples were collected after 8-12 h fasting in sterile condition. All blood samples were collected between 8:00 to 10:00 AM. Serums were centrifuged and stored at -40°C. Serum folic acid and cobalamin were measured by radio immune assay (RIA) and DRG diagnostic kit.

The Glucose Oxidase Phenol 4-Aminoantipyrine Peroxidase (GOD/PAP) method was used to measure fasting blood glucose level. The methods of Glycerol-3-phosphate oxidase Phenol 4-Aminoantipyrine Peroxidase (GPO-PAP), Enzymatic Endpoint and enzymatic clearance were used to measure serum triglycerides, total cholesterol and LDL & HDL, respectively. Fasting blood glucose and lipid profile measurements were carried out by Randox laboratory kit (Hitachi 902). Serum insulin level was determined by enzyme-linked immune-sorbent assay (Human insulin ELISA kit, DRG Pharmaceuticals, GmbH, Germany). The minimum detectable concentration level was 1.76 µlU/ml, Intra CV was 2.19% and Inter CV was 4.4%.

### Statistical Analysis

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS version 20.0). At first the normality of the variables were examined by the Kolmogorov-Smirnov test. FAO & Kant criteria were used in order to determine dietary diversity score (DDS). To evaluate the relationship between quantitative variables by tertiles of dietary diversity, and also in order to evaluate the dietary intake in grouped shifts, the ANOVA test (one-way analysis of variance) was used. To eliminate the effects of age, sex, and energy, ANCOVA was used. The chi-square test was used to evaluate differences between qualitative variables. To determine the association between dietary diversity in different grouped shifts and demographic and anthropometric and biochemical variables, correlations tests were used. A significance level of 0.05 was determined for all statistical tests.

The P-value was calculated using one-way analysis of variance. Post-hoc test was used in order to perform pairwise comparison of dietary diversity tertiles. Similar letters indicate significant differences (p <0.05) between the two tertiles.

methods, and are shown in Table 1. The mean age of subjects was 35.01 ± 6.52 years. The mean range of dietary diversity score by Kant and IDDS method was 4.68 ± 1.18 and 5.77 ± 1.25, respectively.

## Results

### Anthropometric, food intake and food diversity

The baseline characteristics of participants across categories of DDS (Dietary Diversity Scores) were calculated by the Kant and FAO

| | KANT | | | P | P* | FAO | | | P | P* |
|---|---|---|---|---|---|---|---|---|---|---|
| | T1 (n=93) | T2 (n=87) | T3 (n=90) | | | T1 (n= 104) | T2 (n=82) | T3 (n=84) | | |
| | Mean ± SD | Mean ± SD | Mean ± SD | | | Mean ± SD | Mean ± SD | Mean ± SD | | |
| Age (year) | 35.59 ± 6.28 | 34.09 ± 6.57 | 35.49 ± 6.63 | 0.24 | 0.932 | 35.79 ± 6.58 | 35.05 ± 6.09 | 34.31 ± 6.78 | 0.31 | 0.132 |
| Height (cm) | 161.72 ± 7.01 | 160.98 ± 8.59 | 161.58 ± 7.71 | 0.79 | 0.1 | 162.55 ± 7.29c | 161.48 ± 8.33 | 160.05 ± 7.57c | 0.09 | <0.001* |
| Weight (kg) | 68.70 ± 12.76a | 63.92 ± 10.00a | 66.39 ± 12.51 | 0.03* | 0.01* | 68.08 ± 13.28 | 65.49 ± 10.07 | 65.27 ± 11.94 | 0.2 | 0.02* |
| Waist (cm) | 78.75 ± 10.44a | 74.65 ± 8.84a,b | 77.81 ± 11.15b | 0.02* | 0.14 | 78.46 ± 10.85 | 75.72 ± 9.02 | 76.93 ± 10.77 | 0.19 | 0.17 |
| Hip (cm) | 97.41 ± 10.41a | 92.96 ± 8.74a,b | 93.56 ± 9.88b | <0.001* | 0.04* | 95.94 ± 10.45 | 93.81 ± 8.38 | 94.04 ± 10.47 | 0.27 | 0.18 |
| Shift Work (%) | | | | 0.44* | - | | | | 0.41* | |
| Morning | 32.6 | 36.1 | 41.6 | | | 37.6 | 43.8 | 28.9 | | |
| Evening | 3.3 | 6 | 1.1 | | | 3 | 1.3 | 6 | | |
| Night | 15.2 | 19.3 | 14.6 | | | 16.8 | 20 | 12 | | |
| Rotation | 38 | 33.7 | 33.7 | | | 35.6 | 30 | 39.8 | | |
| Evening & Night | 8.7 | 4.8 | 9 | | | 6.9 | 2.5 | 13.3 | | |
| Morning & Rotation | 2.2 | 0 | 0 | | | 0 | 2.5 | 0 | | |
| BP sistol (mmhg) | 109.43 ± 12.89 | 108.76 ± 13.03 | 109.26 ± 12.85 | 0.94 | 0.72 | 109.48 ± 13.31 | 109.04 ± 12.80 | 108.90 ± 12.53 | 0.95 | 0.97 |
| BP diastol(mmhg) | 70.18 ± 10.58 | 69.99 ± 10.6 | 71.14 ± 10.42 | 0.73 | 0.66 | 70.28 ± 10.35 | 69.56 ± 10.61 | 71.49 ± 10.11 | 0.49 | 0.39 |
| FBS (mg/dl) | 87.74 ± 17.86 | 89.08 ± 23.94 | 85.42 ± 13.06 | 0.42 | 0.51 | 89.71 ± 24.42a | 84.31 ± 13.64a | 87.51 ± 13.85 | 0.15 | 0.48 |
| LDL (mg/dl) | 92.31 ± 22.16 | 91.80 ± 21.80 | 96.84 ± 24.23 | 0.26 | 0.11 | 92.53 ± 24.01 | 92.84 ± 18.97 | 95.93 ± 24.74 | 0.55 | 0.21 |
| HDL (mg/dl) | 53.39 ± 13.19 | 53.98 ± 12.52 | 52.72 ± 12.38 | 0.81 | 0.72 | 53.24 ± 11.92 | 52.54 ± 13.41 | 54.27 ± 12.93 | 0.68 | 0.41 |
| TG (mg/dl) | 102.28 ± 59.99 | 109.60 ± 74.61 | 118.70 ± 84.18 | 0.31 | 0.27 | 107.46 ± 80.23 | 113.63 ± 70.19 | 109.96 ± 68.49 | 0.85 | 0.96 |
| Cholesterol(mg/dl) | 172.34 ± 33.34 | 174.20 ± 33.50 | 178.94 ± 34.23 | 0.39 | 0.12 | 172.55 ± 35.25 | 173.65 ± 28.24 | 179.83 ± 36.40 | 0.3 | 0.09 |
| Insulin (µg/ml) | 11.95 ± 12.20 | 12.83 ± 14.23 | 11.23 ± 7.36 | 0.6 | 0.51 | 12.12 ± 11.80 | 12.20 ± 12.83 | 11.61 ± 9.86 | 0.93 | 0.99 |
| Folic acid (pg/l) | 6.67 ± 8.04 | 6.75 ± 8.25 | 8.84 ± 11.83 | 0.24 | 0.07 | 8.37 ± 9.83 | 5.65 ± 6.64 | 7.97 ± 11.37 | 0.14 | 0.87 |
| B12 (ng/l) | 329.13 ± 172.45 | 324.30 ± 145.39 | 351.30 ± 157.06 | 0.5 | 0.19 | 335.32 ± 163.30 | 321.66 ± 150.73 | 348.39 ± 162.76 | 0.58 | 0.49 |
| BMI (kg/m2) | 26.21 ± 4.31a | 24.66 ± 3.38a | 25.34 ± 3.88 | 0.03* | 0.08 | 25.71 ± 4.41 | 25.10 ± 3.33 | 25.41 ± 3.87 | 0.58 | 0.66 |
| WHR | 0.80 ± 0.07c | 0.80 ± 0.06b | 0.83 ± 0.09c,b | 0.03* | 0.23 | 0.81 ± 0.07 | 0.80 ± 0.06 | 0.82 ± 0.09 | 0.5 | 0.88 |
| P* represents ANCOVA assessment after adjusting for age, sex and energy | | | | | | | | | | |
| T (T1=morning fix, T2=evening, night, evening-night fix, T3=rotation, morning and rotation) | | | | | | | | | | |

T represents DDS tertiles

In the case of age, the only adjusted variables were sex and total energy intake

a. Significant difference between first and second tertiles

b. Significant difference between second and third tertiles

c. Significant difference between first and third tertiles

*Ptrend

p<0.05

**Table 1:** Baseline characteristics across tertiles of dietary diversity score using KANT and FAO methods.

Mean weight, waist circumference and hip circumference showed a significant difference with dietary diversity score in Kant tertiles (p<0.03, p<0.02, p<0.001; respectively). Also, weight and hip circumference retained a significant difference after adjusting for age, gender and energy. Additionally, a significant relationship was seen in terms of body mass index and waist to hip ratio (p<0.03). Waist to hip ratio increased by increments in dietary diversity. However, after adjusting for age, gender and energy variables, this effect disappeared. After comparing variables through the post-hoc test, the mean weight, WC, WHR and BMI significantly decreased by increasing the food diversity from first tertile to the second. A significant relationship was observed in terms of WHR between the first and third tertiles, and also between the second and third tertiles. Both of which indicate that the mean WHR is increased with dietary diversity increment.

A significant difference was seen in terms of mean height (p<0.001) and weight (p<0.02) after adjusting for age, gender and energy in FAO tertiles. This means that by increasing dietary diversity score, the average of height and weight was reduced. It was also seen that by increasing the dietary diversity score, systolic blood pressure decreased and serum folic acid level increased, but none of these changes were statistically significant.

## Relationships between other study variables

The mean and standard deviation of variables of different shifts is shown in Table 2. The mean age, weight, waist and hip circumference, HDL and insulin level and BMI were higher in the morning shift than in other shifts. Also, a significant relationship was seen between age (p<0.00) across different shifts, which remained significant even after adjusting for gender and energy (p<0.00).

| | BPsistol (mmhg) | 109.68 ± 12.05 | 107.17 ± 12.23 | 110.07 ± 13.87 | 0.3 | 0.08 |
|---|---|---|---|---|---|---|
| BPdiastol (mmhg) | | 70.02 ± 9.67 | 69.34 ± 10.22 | 71.49 ± 10.88 | 0.38 | 0.02* |
| FBS (mg/dl) | | 90.38 ± 22.77[a] | 83.65 ± 10.29[a] | 85.99 ± 17.52 | 0.05 | 0.28 |
| LDL (mg/dl) | | 95.04 ± 24.39 | 90.24 ± 21.67 | 94.17 ± 22.00 | 0.37 | 0.26 |
| HDL (mg/dl) | | 54.34 ± 12.70 | 53.80 ± 13.44 | 52.23 ± 11.67 | 0.48 | 0.3 |
| TG (mg/dl) | | 110.19 ± 67.76 | 110.86 ± 85.70 | 106.66 ± 65.93 | 0.91 | 0.73 |
| Cholesterol (mg/dl) | | 178.27 ± 34.51 | 171.59 ± 33.28 | 173.81 ± 32.77 | 0.41 | 0.66 |
| Insulin (µg/ml) | | 12.07 ± 10.26 | 11.29 ± 9.84 | 11.03 ± 9.35 | 0.75 | 0.96 |
| Folic acid (pg/l) | | 8.65 ± 9.78 | 6.27 ± 6.86 | 7.29 ± 10.88 | 0.28 | 0.58 |
| B12 (ng/l) | | 368.51 ± 174.42[a,c] | 298.49 ± 153.42[a] | 320.33 ± 130.46[c] | 0.01 | 0.12 |
| BMI (kg/m²) | | 25.86 ± 3.80[c] | 25.45 ± 4.20 | 24.68 ± 3.50[c] | 0.09 | 0.66 |
| WHR | | 0.82 ± 0.09 | 0.80 ± 0.07 | 0.81 ± 0.08 | 0.1 | 0.08 |

P* represents ANCOVA assessment after adjusting for age, sex and energy

T (T1=morning fix, T2=evening, night, evening-night fix, T3=rotation, morning and rotation)

In the case of age, the only adjusted variables were sex and energy

a. Significant difference between first and second tertiles

b. Significant difference between second and third tertiles

c. Significant difference between first and third tertiles

p<0.05

**Table 2:** Mean ± SD of studied variables based on divided shifts.

Fasting blood glucose was significantly higher in the morning working group than the night working group. Morning shift nurses also had a significantly higher BMI than rotating shift nurses.

The mean and standard deviations of food intake across various shifts is shown in Table 3. A significant relationship was observed between carbohydrate intake (p<0.001), lipids (p<0.01) and PUFA (p<0.01). Protein intake was lower in morning shift nurses than night

| | Shiftcat3 | | | P | P* |
|---|---|---|---|---|---|
| | T1 | T2 | T3 | | |
| | Mean ± SD | Mean ± SD | Mean ± SD | | |
| Age (year) | 38.57 ± 6.20[a,b] | 33.61 ± 5.84[a] | 32.57 ± 5.79[b] | <0.001* | <0.0012* |
| Height (cm) | 161.60 ± 7.53 | 160.35 ± 7.96 | 162.15 ± 7.75 | 0.31 | 0.47 |
| Weight (kg) | 67.61 ± 11.27 | 65.58 ± 12.61 | 65.09 ± 11.64 | 0.29 | 0.42 |
| Waist (cm) | 78.84 ± 10.99[c] | 76.21 ± 10.26 | 75.46 ± 8.84[c] | 0.05 | 0.4 |
| Hip (cm) | 95.45 ± 10.68 | 94.62 ± 8.85 | 93.52 ± 9.32 | 0.38 | 0.62 |

or rotating shift nurses, but this difference was not statistically significant.

| | Shiftcat3 | | | P | P* |
|---|---|---|---|---|---|
| | T1 | T2 | T3 | | |
| | Mean ± SD | Mean ± SD | Mean ± SD | | |
| Carbohydrate (g) | 2.63 ± 3.94c | 2.68 ± 4.52b | 2.49 ± 4.14c,b | <0.001* | 0.05 |
| Fat (g) | 7.06 ± 1.75c | 6.74 ± 1.95b | 7.57 ± 1.75c,b | 0.01* | 0.15 |
| Protein (g) | 5.84 ± 1.35 | 6.11 ± 1.68 | 6.12 ± 1.74 | 0.39 | 0.13 |
| SFA (g) | 1.75 ± 5.09 | 1.83 ± 8.88 | 1.85 ± 5.90 | 0.56 | 0.31 |
| PUFA (g) | 1.78 ± 7.96 | 1.58 ± 7.30b | 1.96 ± 8.39b | 0.01* | 0.28 |
| Linolenic acid (g) | 2.80 ± 4.02 | 2.95 ± 5.06 | 3.40 ± 5.20 | 0.65 | 0.25 |
| EPA (g) | 0.01 ± 0.04 | 0.01 ± 0.06 | 0.01 ± 0.06 | 0.82 | 0.36 |
| Vitamin A (µg) | 8.40 ± 9.61 | 7.79 ± 5.91 | 8.68 ± 1.17 | 0.83 | 0.72 |
| Zinc (mg) | 8.50 ± 2.23 | 8.68 ± 2.23 | 8.60 ± 2.18 | 0.86 | 0.38 |
| Vitamin E (mg) | 1.89 ± 8.86 | 1.63 ± 7.43b | 2.04 ± 8.69b | <0.001 | 0.54 |
| Folate (µg) | 3.11 ± 1.10 | 3.18 ± 9.76 | 3.18 ± 1.27 | 0.9 | 0.79 |
| Folic acid (g) | 2.58 ± 8.58 | 2.41 ± 9.19b | 2.72 ± 8.69b | 0.07 | 0.61 |
| Linoleic acid (g) | 7.99 ± 2.67 | 1.04 ± 3.46 | 1.10 ± 3.46 | 0.78 | 0.33 |
| Calcium (mg) | 1.32 ± 3.32 | 1.39 ± 3.20 | 1.36 ± 2.83 | 0.35 | 0.25 |
| Vitamin D (IU) | 5.31 ± 1.23 | 5.79 ± 1.76 | 4.43 ± 1.11 | 0.8 | 0.79 |
| DHA (g) | 0.03 ± 0.13 | 0.05 ± 0.17 | 0.04 ± 0.16 | 0.8 | 0.33 |

P* represents ANCOVA assessment after adjusting for age, sex and energy

T (T1=morning fix, T2=evening, night, evening-night fix, T3=rotation, morning and rotation)

In the case of age, the only adjusted variables were sex and energy

b. Significant difference between second and third tertiles

c. Significant difference between first and third tertiles

p<0.05

**Table 3:** Mean ± SD of dietary intakes based on divided shifts.

The work shifts were divided into 3 groups, and the relationship between dietary diversity and these shifts is presented in Table 4. In the Kant method, weight and hip circumference were increased along with increases in dietary diversity in the morning shift (p=0.05). In the FAO method, insulin and B9 (Folic Acid) level were decreased by increasing dietary diversity in morning shift. However, the serum level of B9 (Folic Acid) and B12 was increased by the increment of dietary diversity in the rotating shift group.

| | Morning Fix | Kant Evening/Night | Rotation/ Morning And Rotation | Morning Fix | FAO Evening/Night | Rotation/ Morning And Rotation |
|---|---|---|---|---|---|---|
| | R | R | R | R | R | R |
| **Variables** | P | P | P | P | P | P |
| Age (year) | -0.071 | 0.008 | -0.116 | 0.081 | -0.049 | -0.007 |
| | 0.49 | 0.95 | 0.265 | 0.43 | 0.688 | 0.947 |
| Height (cm) | -0.083 | -0.08 | -0.177 | 0.039 | 0.107 | 1 |
| | 0.421 | 0.503 | 0.087 | 0.701 | 0.371 | |
| Weight (kg) | -0.195 | 0.01 | -0.087 | -0.096 | 0.047 | -0.142 |
| | 0.055 | 0.934 | 0.402 | 0.351 | 0.7 | 0.17 |
| Waist (cm) | -0.115 | 0.048 | -0.096 | -0.035 | 0.079 | -0.142 |
| | 0.261 | 0.691 | 0.356 | 0.733 | 0.51 | 0.171 |
| Hip (cm) | 0.194- | 0.006 | -0.018 | -0.157 | -0.052 | -0.177 |
| | 0.057 | 0.96 | 0.862 | 0.126 | 0.666 | 0.088 |
| BPsistol (mmhg) | -0.062 | -0.008 | 0.096 | 0.145 | -0.124 | -0.042 |
| | 0.55 | 0.947 | 0.362 | 0.164 | 0.298 | 0.688 |
| BPdiastol (mmhg) | -0.025 | 0.037 | 0.147 | 0.001 | -0.044 | 0.132 |
| | 0.812 | 0.76 | 0.164 | 0.993 | 0.719 | 0.212 |
| FBS (mg/dl) | -0.13 | 0.061 | -0.037 | -0.088 | 0.128 | -0.063 |
| | 0.204 | 0.615 | 0.724 | 0.394 | 0.289 | 0.548 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LDL (mg/dl) | 0.102 | 0.003 | 0.095 | 0.087 | 0.002 | 0.165 |
| | 0.319 | 0.98 | 0.361 | 0.399 | 0.99 | 0.112 |
| HDL (mg/dl) | 0.04 | -0.112 | 0.208 | 0.075 | -0.177 | 0.189 |
| | 0.697 | 0.352 | 0.044 | 0.464 | 0.14 | 0.068 |
| TG (mg/dl) | 0.055 | 0.062 | -0.083 | 0.077 | 0.221 | -0.104 |
| | 0.59 | 0.61 | 0.425 | 0.451 | 0.064 | 0.318 |
| Cholesterol | 0.176 | -0.031 | 0.12 | 0.132 | -0.004 | 0.172 |
| | 0.084 | 0.796 | 0.251 | 0.198 | 0.97 | 0.096 |
| Insulin (µg/ml) | -0.025 | 0.182 | -0.221 | -0.089 | 0.056 | -0.13 |
| | 0.808 | 0.128 | 0.032 | 0.038 | 0.641 | 0.21 |
| Folic acid (pg/l) | -0.12 | -0.151 | 0.113 | -0.19 | 0.108 | 0.248 |
| | 0.253 | 0.221 | 0.282 | 0.068 | 0.382 | 0.017 |
| B12 (ng/l) | 0.09 | -0.037 | 0.196 | 0.007 | -0.02 | 0.257 |
| | 0.392 | 0.764 | 0.061 | 0.947 | 0.869 | 0.013 |
| BMI (kg/m2) | -0.123 | -0.024 | -0.138 | -0.172 | 0.079 | <0.001 |
| | 0.229 | 0.844 | 0.182 | 0.092 | 0.511 | 0.999 |
| WHR | 0.129 | 0.135 | 0.004 | 0.07 | 0.033 | -0.137 |
| | 0.209 | 0.258 | 0.966 | 0.498 | 0.783 | 0.188 |

**Table 4:** The relationship between dietary diversity in different shifts and with different variables.

## Discussion

In the current study, it was shown that by increasing dietary diversity, mean weight, waist circumference, hip circumference and body mass index scores were reduced, while the waist to hip ratio increases. Many similar studies have also confirmed these findings. For example, in a study by Mirmiran et al. [20], those who were in the first quartile of DDS had higher levels in some anthropometric factors. No significant difference was seen in their study between DDS quartiles by BMI and WC. However, waist to hip ratio was higher in the first quartile compared to the fourth quartile which indicates higher abdominal obesity in people who have less food diversity. Azadbakht et al. [21] showed a reduction in the possibility of obesity by increasing DDS. A significant difference was also observed in terms of mean BMI, WC and WHR in DDS quartiles. However, the results are contradictory on this issue as well. McCrory and his colleagues observed an increase in obesity due to DDS increasing [22]. The people with obesity and abdominal obesity had highest level of DDS than non-obese individuals in a study by Jayawardena et al. [23]. Increasing obesity levels in parallel with increasing dietary diversity could be due to increased appetite and consequent increased energy intake [24,25]. Several studies have shown a relationship between increased energy intake and increased dietary diversity [26,27]. Dietary diversity can act as a double-edged sword for energy regulation, and may have positive or negative effects on obesity, based on which food groups increase dietary diversity [22]. In addition, the present study's results demonstrated that DDS, as calculated by the Kant method, was more strongly associated with anthropometric measures, including indices of central obesity like WC. Moreover, DDS calculated in that way was also associated with serum concentrations of insulin. This is in line with previous studies which found a significant association of central obesity with insulin resistance [8-11].

The present results also demonstrated a higher level of mean age, weight, waist and hip circumference, BMI, HDL and glucose in the morning shift. In this regard, the results are different. There was an inversely significant relationship between waist and hip circumference with increased dietary diversity in morning shift nurses.

The average intake of carbohydrates and age was higher in night and evening shift nurses. Unhealthy and irregular food plans, such as skipping breakfast, may cause weight changes. Work shifts are one of the causes for disturbed normal diets and unhealthy food choices [28-30]. Several studies have proven the relationship between shifts and overweight and obesity [11,31]. In a study of Korean nurses, it was found that rotating shift workers were younger. This study is in line with the current study, since younger people are more likely to be involved and active in night and rotating shifts. Also, those with longer shifts were older and had higher BMI and BP [32].

In a Malaysian study on women working in an electronic equipment factory, a significant relationship was observed between overweight workers and working in the night shift [11]. Long shifts were a predictor of increased BMI in a cross-sectional study [33]. In an Australian cross-sectional study, it was shown that nurses working shifts had a 1.15-times greater risk of obesity and overweight, while only fixed night shifts were linked to obesity [34,35].

Western studies have also shown high rates of obesity among night shift nurses [33,36]. In another study it was indicated that night shift workers had higher BMI than day shift workers [37].

In a Sudo et al. [38] study, total energy intake in night shift workers was less than in the day shift. This was due to the low frequency of meals and low-quality foods at night. Rotating schedules with night shifts may be a reason for lower weights in these nurses [39]. Job stress is also higher in rotating shifts [40]. In some studies, it was shown that nurses may miss opportunities to snack during the day due to their heavy workloads. Night shift nurses may also consume unhealthy snacks in the middle of the night [29,30,41].

Another study found that cookies and snacks consumption through the shift was higher than other healthy choices [42]. This may be due to differences in working hin several countries. Korean and American nurses work 8 and 12 h, respectively [32,43]. It is different for Iranian nurses, who work 6 h in morning shifts and 12 h in night shifts. In general, nurses may enjoy better health due to higher levels of health education and self-care than the public [44,45]. Lower and higher blood pressure levels were observed in morning and night shifts, respectively [32].

It should be noted that nurses are among the most important members of a health care management process. More health care managers will manage health care processes better for a range of different patients. This will lead to increased patient health knowledge, self-management skills, and readiness to make changes in health behaviors [46]. Adherence to a better dietary approach is recommended for nurses in night or evening shifts, as well as those in rotations which involve night shifts.

## Strengths and Limitations:

According to the literature search, no study exists evaluating the relationship between dietary diversity and dietary intake with nurses' shifts; this was one of the strengths of this study. In addition, two different methods for evaluation were used for evaluating dietary diversity score, each of which had its own pros and cons.

One of the limitations of this study was its cross-sectional nature, which has little ability to detect causality. In addition, the effect of different variables cannot be investigated over time. Other limitations include non-evaluation of economic status, which can affect people's stress levels, as well as their access to food. The majority of study participants were females. Further studies on both sexes are needed to determine the influence of gender differences on these findings. In addition, other nutritional data was not collected. It has been seen that nutraceuticals induce additional health benefits [47]. Furthermore, due to the limited sample size, it was not possible to perform multivariate regression analysis. Finally, data was not collected on participants' physical activity in this study, which is an important confounder.

## Conclusion

In the current study, it was found that anthropometric factors such as weight, waist and hip circumference and BMI are decreased by increases in dietary diversity. While waist to hip ratio increased, it was also found that the mean age, weight, waist and hip circumference and body mass index was higher in the morning shift. Also, it was revealed that the average intake of carbohydrates was higher during night and evening shifts.

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# A Call to Incorporate Child Rights and the Plight of Child Carers into the Nursing Undergraduate Curriculum and Why

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## Abstract

The primary aim of this paper is to apply children's rights principles to the area of child carers. It will describe and examine the current laws and acts which exist to "*protect*" young carers, and discuss if they are effective or indeed helpful through a child's rights lens. Discussion will focus on if there is a conflict between children's rights, the research on young carers, current policy and children's well-being. Finally, the potentially helpful role and obligation of Registered Nurses in safeguarding such children from a Children's Rights perspective will be discussed.

**Keywords:** Child carers; Child rights; Nursing obligations; Education

## Introduction

As a newly qualified staff nurse working in Accident and Emergency the plight of "*child carers*" shocked me. Health care professionals would gather information from children such as medical history even personal information such as bowel movements or suicidal thoughts with no apparent insight as to how inappropriate this was. I questioned this with senior colleagues and was brushed off as much as to say it's not our problem. The primary aim of this paper is to apply children's rights principles to the area of child carers. It will describe and examine the current laws and acts which exist to "*protect*" young carers, and discuss if they are effective or indeed helpful through a child's rights lens. Discussion will focus on if there is a conflict between children's rights, the research on young carers, current policy and children's well-being. Finally, the potentially helpful role and obligation of Registered Nurses in safeguarding such children from a Children's Rights perspective will be discussed.

## Childhood and Caring

Within western constructions of childhood, children are not expected (or encouraged) to take on substantial or regular caregiving responsibilities [1]. "*Childhood*" is viewed as a special or protected phase, with adults, state agencies and social welfare professionals charged with safeguarding and protecting children until they make the transition into adulthood [2]. One expects therefore children to be cared for as opposed to providing care. The concept of child carers came into recognition in the late 80's with what Olsen et al. [3] describes as "*an explosion of interest*" in the 1990's as if their plight had suddenly come to society's consciousness. Descriptive studies by Fallon et al. [4] Bilsborrow et al. [5] Meredith et al. [6] and Aldridge et al. [7] had young carers experiences as their focus while authors such as O'Neil et al. [8] aimed at identifying numbers and identification of the tasks they performed and how frequently.

It is widely accepted that many children do indeed take on various chores but the exact number is still unknown, and defining their role is riddled with difficulties [9]. Child or young carer are the two most widely used terminologies, however their age group varies in literature from under 16, 18 and 25, and some literature refers to children as being carers if they carry out any caring task while others only classify them as "*carers*" if they have no choice, as of this decade there is still no consensus on the definition of a young carer [9]. There are various reasons as to why a child cares with the main reason being no appropriate adult to do so otherwise hence why a huge proportion of those are in lone parent families [10] or that the adult has not received the support to which they are entitled and if professionals fail to address the needs of children in this context [11]. It must be remembered that many children chose or want to take on caring responsibilities, which is quite different to having to and the distinction between the two is imperative to understanding their needs. Many children with a parent with a terminal illness want to provide some care, or helping a frail elderly relative, or younger sibling and certainly some degree of caring in childhood is both routine and to be valued and encouraged as a part of "*healthy*" child development [12]. The extent of the role and what duties this entails are also important. Literature details that the time spent caring per week can range from less than 5 hrs (15%) with an average of 15 hrs per week (50%) with a staggering 18% of children spending between 30-50 hours carrying out caring responsibilities [13]. The types of chores range from gardening to toileting, and are classified as domestic, general (shopping errands), intimate, emotional and child care, with the most common tasks being domestic and emotional caring. There are also variations between the genders with girls being more likely (but not exclusively) to carry out intimate care and child care [14] with boys engaging in more general tasks and children become more heavily involved in caring as they get older [15] and a disproportionate number of carers from ethnic minorities possibly linked to poverty [16].

For the first time the decennial UK census (2001) asked about caring responsibilities and general self-rated health. Of all children aged between 5 and 15, 1.4% provided care of which a third provided care more than 20 hrs a week with a substantial number more than 50 hrs a week. Doran et al. [17] analyzed the results and also discovered a direct correlation between the number of hours' children spent caring and rating their health as "*not good*", and commented that if they were

paid employees these carers would be in contravention of the European Working Time Directive. This was not the first time concern has been raised in fact Siddall et al. [18] describes how the overwhelming view within debates about young carers was that it causes serious problems for the child. The Tameside study [19] attempted to ascertain the extent to which caring impacted on children's lives and makes for depressing reading with friendship difficulties, limited time for social and leisure activities, limited time for school and homework all highlighted. However, these studies were all descriptive rather than interpretative asking folk such as school pastoral staff rather than the children themselves. Aldridge and Becker's et al. [7] was the first to investigate in-depth using qualitative methods child carers lived experiences. It revealed that young careers are often forced into undertaking intimate caring responsibilities that are both distressing and unappealing to them as well as to the care receiver, and how physical tasks such as lifting put young carers at risk. The subjects of this project were recruited from child carers groups and interviews were carried out in the presence of the parent or appropriate adult, so although progressive compared to previous research attempts in this area still arguably limited with perhaps the children being cautious about what they say in front of the person receiving the care and indeed hardly a true picture of the world of child carers with the sample made up entirely of those already being supported [20,21]. Recently other authors have acknowledged that what is missing is "*deeper insight*" about children's experiences which is what should drive policy [22], noting that research which purports to be about families often centers on parents and overlooks the experiences and view of children [23]. Other research which was quantitative in nature identified many negative associations with being a child carer such as lower academic attainment, health problems etc., many of which were published in journals such as Child Abuse Review [24-26].

Despite a lack of a precise definition, the bulldozer of research resulted in children who care going from a baseline of zero in the late 80's early 90's to a major child welfare concern in the next decade [27], with calls for social services to be mobilized to protect these child carers and claims that the role of child carers denies children of their rights. Policy making swung into action based on the plethora of research published describing the negative impact of care-giving on young carers (seemingly ignoring the few detailing some positive impacts nor taking into consideration the young person's views) which led to polices and laws to protect young carers being rolled out to cover all, but which it could be argued are not tailored and therefore fit none [28].

## Child Rights

As far back as 1920's pioneers such as Banks P [13] recognized that children were of as much importance as adults yet vulnerable. The Declaration of Geneva in 1924 made a series of statements which could be argued was the emergence of Child Rights although this as a concept struggled to find a definition. The United Nation (UN) was established in 1945 and aimed to preserve peace through international collaboration, collective security and promote the respect for human rights. The Universal Declaration on Human Rights (UDHR) was signed in 1948, which is a declaration i.e. it is not legally binding but seen as a statement of intent or principle, "*a common standard of achievement*". Since then it has implemented a range of significant human rights treaties which are legally binding which replicate the rights in the UDHR, one of which is The Convention on the Rights of the Child with 54 articles poised and was adopted and opened for

signature, ratification and accession by General Assembly with entry into force on 2nd September 1990. The UN Treaties are enforced through the system of periodic reporting to the UN Treaty Monitoring Bodies, and UN's Special Rapporteurs' offers an additional mechanism which is widely regarded as an important weapon in the arsenal of human rights monitoring, but in fact is limited as they are devoid of special powers of investigation or enforcement. The Council of Europe formed in 1949 currently has 46 members and exists to define human rights and democracy by producing a series of instruments that relate to children and are of importance as applied to UK Law. Key terms include "*Hard Law*" and "*Soft Law*". Hard Law is when a States ratification becomes legally binding and soft law relates to rules/declarations rather than law. The Child Rights stipulated by the UN are often quoted in literature relating to child carers.

## Child rights and Child Carers

The literature on child carers especially those written in the early days argue that many child rights are breached when children are carers. Article 19 states "*all appropriate legislative, administrative, social and educational measures to protect the child from all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse*". This article is quoted alongside Article 32 which recognizes the right of the child to be "*protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development*". With evidence of some child carers "*working*" up to 50 hrs per week [17] it can be argued that this is a breach of article 32 part 2 (a) "*provide for appropriate regulation of the hours and conditions of employment*" and with children as young as 5 being identified as carrying out caring roles part 2 (a) "*provide for a minimum age or minimum age for admission to employment*" it is easy to argue that many young carers are in fact being economically exploited. Furthermore, many of the tasks which children are engaged in include lifting an adult and/or performing intimate care [29] is potentially damaging both physically and psychologically. "*Lifting*", of adults is banned from all care contexts be it hospital or community settings by the Nursing and Midwifery Council [30], those requiring moving and handling have a full nursing assessment of needs and only those trained in techniques with the correct equipment are permitted to do so. Institutions which fail to provide such equipment or training for personnel can face prosecution. It seems inconceivable then that state parties who have knowledge of children lifting without such training or equipment can let this happen without breaching these rights and Article 36 "*protect the child against all other forms of exploitation prejudicial to any aspects of the child's welfare*".

Article 31 recognizes the right of the child to rest and leisure, "*to engage in play and recreational activities appropriate to the age of the child*". Literature details that caring can be linked to adverse social outcomes as it can limit young people's opportunities for socialising and private pursuits such as play [14], or extracurricular activities [8]. Collins et al. [31] and Obadina et al. [32] report young carers feeling isolated and different from their peers, feelings of resentment, anger, emotional exhaustion and stress are also common and O'Dell et al. [33] found child carers to be socially isolated from their peers due to their responsibilities. Therefore, article 31 in some circumstances could be breached as could article 27 "*standard of living adequate for the child's physical, mental, spiritual, moral and social development*". Of

most concern in literature is the negative impact of caring regarding education and health. It is of little doubt that education is affected with poor attendance [34] higher dropout rates [35] lower attainment in examinations [36] and higher levels of stress and poorer mental health compared to other children [37] due to their responsibilities. Article 28 includes part (e) "*take measures to encourage regular attendance at schools and the reduction of drop-out rates*". Less than 22% of carers reported any kind of help or allowances or even assessment of their needs to enable them to complete school or college work, with many reporting punitive measures being put in place despite them explaining the reason for incomplete work [38] thus compiling stress and making them believe dropping out was the only answer. Therefore, it could also be argued that in many incidences article 29 "*the education of the child shall be directed to (a) the development of the child's personality, talents and mental and physical abilities to their fullest potential*" is also breached if child carers are not able to engage fully with all aspects of school life as is article 24 "*enjoyment of health*" with so many suffering from stress and anxiety [39].

This body of literature resulted in the general opinion that being a child carer has negative impacts and thus legislation was brought in to "*protect*" said child carers. To quote breaches of some child rights is in my opinion cherry picking aspects of the convention without looking at child rights as a whole and taking into consideration broader and fundamental child rights nor does it take into consideration potential benefits of caring.

## Legislation and Young Carers

The first legislation to immerge was The Children's Act [40] which stipulated that some child carers be assessed if they met certain criteria but was criticised as large numbers of carers were therefore overlooked and was followed by the Carers Strategy [41,42] which is very clear in its vision but sadly even in 2017 has failed to make an impact on policy. The Community Care Act [43] which translated into Northern Ireland in 1993 disappointingly failed to acknowledge any carers under the age of 18. The result was an outpouring of anger in literature regarding the inadequacies of these policies which lead to the Carers Act 1995 [44] which insisted carers' needs were important but secondary to the needs of the care receiver [45] and carers could only be assessed if the recipient was reassessed. Furthermore, in Northern Ireland this act translated into the Children's Order (1995) which made assessment of child carers statutory requirement and in fact describes all young carers as vulnerable and classifies them as children in need [46], this was a rather knee jerk reaction bordering on ridiculous.

Young carers are not at inevitable risk of harm or developmental delay. As a young teenager I was mobilised to prevent an Aunt with disabilities from going into long term care by carrying out household chores and staying overnight with her. Indeed, Becker et al. [1] writes that some level of attachment and caring by children is viewed as necessary for "*healthy*" psycho-social development in most societies and there are some benefits.

Reinforced bonds between children and parents were found by Gopfert et al. [47], a sense of identity and purpose with many feeling proud of their role [48] developing skills needed in adulthood, enhanced coping mechanisms and contributing to the integrity and resilience of families [13].This is a small body of research primarily because there appears to be a distinct lack of good qualitative literature involving children asking them about what it's like to care or their feelings about it. Much of the literature as discussed above is

quantitative focusing only on the negatives rather than potential positive aspects [49]. The negatives cannot be ignored however children's development and childhood experiences are not inevitably adversely affected when caring, only when it becomes long term and disproportionate i.e. when the practical and emotional responsibilities is not congruent with the child's age [50] or changing needs of the child e.g. increasing want or need to study socialize etc. [51]. There is much evidence to suggest that this all-inclusive policy of prejudging all child carers as 'at risk' did considerable harm. Unfortunately, it created fear amongst families' that the child would and in many cases were removed from the family for "*their best interests*" and even the perceived threat of intervention caused anxiety. It is now of major concern to policy debates those young carers and their families actively hide their situation from outside agencies for example in many instances schools are unaware of the caring duties performed by their pupils [52]. Smyth et al. [53] found that young carers have gone "*underground*" and stay hidden and beyond the reach of services and supports. O'Dell et al. [33] state that many child carers underestimate their responsibilities and actively hide from social services. A further criticism of this policy is that to imply the child's rights have been breached is to imply that it was the parent who is the culprit. Newman et al. [27] argues that the pre occupation with rights of the child has diverted attention and possibility resources away from the needs of the whole family. This could result in parents feeling disempowered and pathologies by having their illness effecting their child Critics of child rights include those who say they interfere with other rights this might be the case here with parents right to stay in a family situation and fail to take into account the rights of the cared for person. Perhaps a more useful definition or approach to the situation is not how the child cares, their age, what tasks, who they care for etc. rather the impact these duties have on them and a broader examination of all their rights including the general principles rather than quoting a few to justify policy.

## The general principles

Articles 2, 3, 6 and 12 are known as the general principles. Article 2 refers to non-discrimination stating "*without discrimination of any kind irrespective of the child's or his or her parent's or legal guardian's race, colour, sex, language, religion, political or other opinion, national, ethic or social origin, property, disability, birth or other status*". Newman et al. [27] discusses how policy dictates that every family where there is a greater likelihood of children becoming carers including where there is sickness or disability is highly discriminative towards disabled parents implying that being a disabled parent is somehow "*hazardous*" to children. Smyth et al. [53] describes how policy identified many children as child carers because they carried out some chores or simply because they had a disabled parent without any evidence of negative impact to the child and Seddon et al. [54] Cass et al. [55] describes how there is no consideration made as to how much children would do in a normal family situation before tasks carried out by children of disabled parents were labelled carers. Would this have meant I would have been considered a child carer rather than loving relatives by policy if the Aunt I cared for was my parent? Furthermore, article 16 states "*no child shall be subjected to arbitrary or unlawful interference with his or her privacy, family, home or correspondence, nor to unlawful attacks on his or her honour and reputation*". By referring a child to social services purely on the grounds that a parent is ill or disabled and therefore they might be exposed to negative consequences without evidence of such would breach this right.

Article 3 states "*the best interest of the child shall be a primary consideration*". It is interesting that this article states the child's best interest is "*a*" primary consideration not 'the' primary consideration, and in some cases it was argued that it was in the child's best interest to be removed from the family situation or to be stopped from caring. However, what about the child's well-being generally? For a child to be in a state of well-being they need to be loved or feel that they are loved or at least cared for by others [56]. There is no right to love in the UN convention on the Rights of the Child and therefore it could be argued that the need to be loved and cared for is of no consideration when considering what is in the child's best interest even though to stay with loving parents/parent would be best? It is of little doubt that it is in children's best interests to stay in the family situation [57] rather than in care, but if the issue of rights is to be debated when legislators are considering best interest as "*a*" consideration they should also take into account articles 7 and 8 which quite clearly state "*the right to know and be cared for by his or her parents*" and "*respect the right of the child to preserve his or her identity, including nationality, name and family relations*". It would appear that there is a lack of understanding of what effective parenting are [58] as illness or disability does not undermine parenting skills only some abilities.

The third general principle article 6 states "*the inherent right to life: state parties shall "ensure to the maximum extent possible the survival and development of the child*". To ensure development child carers should be supported in carrying out these tasks but to remove them from the family would undermine their development.

The last general principle article 12 refers to participation, "*the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child*". This right is fundamentally breached with regards to the issue of child carers. As discussed there is a lack of good qualitative research where children fully participate and give their views on caring. Most is quantitative, and those that are qualitative were either conducted with adults present or a lack of anonymity assured calling into question the results reliability or questions posed to children asked them to discuss the negative impacts of caring only. It could perhaps be argued that as well as denying their right to participation this type of research also breaches article 13 the right to freedom of expression. It was on this body of literature that current policy was formed and therefore is highly questionable. Lundy et al. [59] reminds us that children must have safe and inclusive opportunity to form and express a view and be facilitated to express views freely in a medium of choice which frankly is lacking in the literature on child carers. Furthermore, the broad sweeping referral of any child who "*care*" for assessment conducted by social workers with little or no insight into the physical and emotional demands of caring without consultation of the child with regards to how or if it affects them both negatively and positively denies them this fundamental right. Where it is without doubt that the child is subjected to negative consequences this right of participation must still be taken into consideration at the time of intervention, with the child's voice being heard with regards to what would be helpful to them as opposed to third parties mobilizing resources or removing the child. As discussed there is a fear amongst young carers of intervention and state parties must also remember article 9 part 1 "*a child shall not be separated from his or her parents against their will except when competent authorities subject to judicial review determine*", and part 2 of article 12 "*the child shall in particular be provided the opportunity to be heard in any judicial and administrative proceedings affecting the child*". Again Lundy's model of participation [59] reminds us that

article 12 also states the right to views given due weight, meaning the audience must listen to those views and those views must be acted upon as appropriate. Do the newer Acts finally take this into consideration?

In 2014 in England and Wales the Children's and families Act and Care Act of 2014 [58] became legislation and declares young carers as "*rights holders' which has been welcomed by the Carers Trust 2015 [41] as it will strengthen the needs of both the cared for person and the care giver*". The Human Rights of Carers in Northern Ireland Report [41] describe new rights to assessment for those under 18 irrespective of time or task (perhaps what is meant is a new acknowledgement of rights as they aren't new) and The Young Carers Regulations [41] does recognize the rights of the child as a young carer which is hopeful especially as it also acknowledges the importance of meeting the cared for persons need which would lessen the burden on the carer. How successful these implementations will be however is if state parties ensure the Whole Family Approach is promoted instead tensions arising between the child's rights, those of the cared for person and policy being implemented without consultation of both [60]. It is too early to tell if these new measures will be effective nor if the trust in the state by child carers and their families can be re-established. Perhaps who would or could carry out such assessments and referrals and their appropriateness to do so is of importance.

## The Nursing Profession and Young Carers, the way forward?

Considerable damage was done by these sweeping policies as there was/is a general fear and reluctance to engage with social services and with research projects. This resulted in many young carers who need help being overlooked, while some who were well able and willing to carry out some caring tasks are deemed at risk [61].

Nursing is now firmly established as a profession and is bound by its own professional code of conduct and regulatory body who state that nurses "*must act as an advocate for those in your care, helping them to access relevant health and social care, information and support*". Lay people's perceptions of nurses are as trust worthy individual's bound by confidentiality and have unique access to not only the recipient of care but also carers. They also have good insight into the requirements of caring e.g. lifting, dispensing medication, washing and emotional care and support. It seems rather obvious then that as adults become in need of care that nurses have a responsibility to ensure adequate provisions are in place at that point to ensure children do not have to pick up and slack, or if the situation deteriorates that again nurses can and should intervene. Secondly, if some tasks are being carried out by children who want and wish to help out the nursing body would have good insight into the appropriateness of the burden and mobilise the resources as required. For example, some child carers provide only emotional support [9] which seems innocuous however this can be incredibly emotionally exhausting and psychologically damaging to any care givers [62] including trained nurses, let alone to a child. Community psychiatric nurses would be in a unique position to assess when child carers are shouldering too heavy a burden. Some tasks such as mobilising could be made safe or at least less hazardous if the carer was appropriately trained rather than making a knee jerk referral to social services. Indeed nurses pride themselves on devising and revising care plans as needs change which could be done in conjunction with the changing needs of the carer e.g. if they have exams coming up rather than what seems to be the situation at present that a battle between the child's and the care receivers needs or rights.

Furthermore, as advocates nurses are obliged to be the voice of their patients and their families and hence should intervene if they believe their rights are being breached, whether that is because there is no intervention or indeed too much [63]. At present awareness of vulnerable adults and children are embedded into undergraduate nursing curriculums but there is no such discussion of child carers nor child rights. The MidStaffordshire enquiry [64] resulted in compulsory inclusion of carers into health care planning and education but yet again there seems to be an omission of young carers in both.

## Conclusion

Any guidelines for the provision of young carers' needs or service delivery must surely be based on philosophical and pragmatic principles including the recognition and observation of children's rights, practical policy recommendations based upon these rights and "*pragmatic considerations*" in relation to professional intervention and service arrangements [65]. To ensure this happens to all state parties must have an understanding and be diligent in ensuring all child rights are enforced. In changing modern times with more single parent families than ever before, "*sicker*" individuals staying at home rather than being hospitalised than any time and in times of austerity there is potential for more children to be engaged in caring than ever before. It is my firm belief that the nurse's role must not only be to care for and be advocates for their patients but their families, and therefore there is a clear need for the awareness of child carers to be discussed at all levels in nursing and most definitely at undergraduate level. However, to ensure the mistakes of the past are not repeated rather than them being discussed just as potentially vulnerable children in need of protection, that this teaching should be done through a child rights lens to ensure nurses of the future as state parties are able to promote a whole family approach to ensuring the best possible tailored provisions are put in place in each situation to best meet the needs of those in their care.

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# Journal of Nursing and Care

**Short Communication**                                                                                          **Open Access**

# A Study to Assess the Effect of Planned Teaching Program on Knowledge Regarding Interpretation of Cardiac Arrhythmias and its Management among Staff Nurses in Selected Hospitals of Pune City

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## Abstract

**Introduction:** Any change in electrical conduction or automaticity of the heart causes disturbances in heart rate and rhythm, often referred to as cardiac arrhythmias.

**Objectives:** To assess the knowledge regarding interpretation of cardiac arrhythmias and it's management among staff nurses before and after planned teaching program, to compare the pre-test and post-test knowledge scores regarding interpretation of cardiac arrhythmias and it's management among staff nurses and to associate the pre-test score with selected demographic data.

**Materials and methods:** A quantitative research approach using pre-experimental pre-test post-test design was adopted for the study. Sister Callista Roy's adaptation model was adopted in the study, Non-Probability Convenient Sampling technique with 100 samples were selected from selected hospitals of Pune city. A self-structured questionnaire was used to collect the data during September 2017 to October 2017 to obtain the knowledge level.

**Results:** Findings of the study shows that majority of participants were females (65%), working in critical care units (63%) with Revised Diploma in General Nursing and Midwifery (78%) in the age group of 20-25 years (52%) having attained no in-service education regarding cardiac arrhythmias (77%). There was no association between knowledge scores and selected demographic variables. Pre-test knowledge scores; in the present study 64% of the samples had average knowledge regarding interpretation of cardiac arrhythmia's and its management Post-test knowledge scores increased after planned teaching program. 88% of samples had good knowledge regarding interpretation of cardiac arrhythmia's and its management.

**Conclusion:** A majority of nursing staff in ICU's can be helpful in prevention of critical condition and promotion of health. Thus, arises the need to train nurse's through educational programs which will benefit in early detection and diagnosis of cardiac arrhythmia's, reducing the mortality rate and improving quality of care provided.

**Keywords:** Knowledge; Cardiac arrhythmias; Staff nurses

## Introduction

16 million deaths were reported globally due to cardiovascular disorders. Cardiac arrhythmias are some of the conditions which carry life threatening risks leading to heart failure or death, where early actions can play a great role in bringing back a patient from the clutches of death. Ventricular fibrillation is the most common dysrhythmia associated with sudden cardiac death, accounting for 65% to 80% of cardiac arrests [1-3].

## Materials and Methods

A quantitative research approach using pre-experimental pre-test post-test design was adopted for the study. Sister Callista Roy's adaptation model was adopted in the study, non-probability convenient sampling technique with 100 samples were selected from selected hospitals of Pune city. A self-structured questionnaire was used to collect the data during September 2017 to October 2017 to

obtain the knowledge level. The data were collected using self-structured knowledge questionnaire which includes- Section- I: Demographic variables, Section-II: Structured questionnaire consisting of 25 multiple choice questions assessing knowledge regarding interpretation of cardiac arrhythmia's and its management. The scored are given as: 0-8 Poor, 9-16 Average and 17-25 as Good. Ethical approval was obtained from the ethical committee member. Written consent was taken from the participants.

## Results

The analysis and interpretation of the data was done to determine the efficacy of the planned teaching program on knowledge regarding interpretation and management of cardiac arrhythmia's among staff nurses working in selected hospitals of Pune city. 52% of samples were from the age group of 20-25, 65% of samples were female, 78% of samples had degree of RGNM, 63% of samples had work experience in critical care units, 50% of samples had undergone in-service education. 64% of samples had average knowledge regarding interpretation of cardiac arrhythmias and its management before planned teaching

which improved after planned teaching as 88% of samples depicted good knowledge regarding interpretation of cardiac arrhythmias and it's management. This was supported by inferential statistics by using paired t test showed that there was marked increase in mean knowledge score after planned teaching program as calculated value of 't' was greater than tabulated value of 't' paired t-test was significant; 't' (99)=24.901, at 0.05 level of significance. There was no association found between demographic variables with pre-test scores. There is no significant association between knowledge regarding interpretation of cardiac arrhythmias and it's management among staff nurses and selected demographic variables at 0.05 level of significance" (Tables 1 and 2).

| Knowledge Score | Pre-test | | Post-test | |
|---|---|---|---|---|
| | Frequency (f) | Percentage % | Frequency (f) | Percentage % |
| Poor (0-8) | 24 | 24% | 0 | 0% |
| Average (09-16) | 64 | 64% | 12 | 12% |
| Good (17-25) | 12 | 12% | 88 | 88% |
| Total | 100 | 100 | 100 | 100 |

**Table 1:** The findings related to knowledge of staff nurses regarding Interpretation of cardiac arrhythmias and it's management before and after planned teaching program (n=100).

| Test | Mean | Standard deviation | Calculated "t" value | Tabulated "t" value |
|---|---|---|---|---|
| Pre-test | 10.66 | 2.808 | 24.901** | 1.645 |
| Post-test | 20.28 | 2.021 | -- | -- |

**Table 2:** Findings related to efficacy of planned teaching in terms of difference between pre-test and post-test mean score (n=100).

## Discussion

Pre-test knowledge scores; in the current study samples had average knowledge regarding interpretation of cardiac arrhythmia's and its management. Samples had good knowledge regarding interpretation and management of cardiac arrhythmias after planned teaching program. There was no association between knowledge scores with selected demographic variables.

## Conclusion

The conclusion drawn from the findings of the study is that there is positive influence of educational programs in early detection and management of cardiac arrhythmia's among staff nurses, reducing the mortality rate and improving quality of care provided.

## Recommendations

The following recommendations were made for future research:

- Study could be replicated in other intensive care units and wards of selected institute.
- Study could be replicated by increasing the size of the sample.
- Similar study would be replicated to asses the difference in knowledge score's of staff who have attended in-service education/training programme and those who did not attend any in-service education/training programme.

## Acknowledgement

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# Journal of Nursing & Care

# Workplace Violence, Anxiety and Self-Esteem in Nursing Staff of Primary, Emergency and Intensive Care Units on the Island of Crete

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## Abstract

**Introduction:** Mobbing in the workplace occurs when someone repeatedly, for a long time is exposed to negative behaviors and may have difficulty in defending himself. In the nursing profession, labor intimidation is common. It is now accepted that anxiety and self-esteem can play a particularly important role in mental and in physical health of nurses.

**Purpose:** The investigation of self-esteem, the existence of anxiety and the phenomena of workplace mobbing of nursing staff working in Primary Health Care, Intensive Care Unit and in the Emergency Department.

**Methodology:** An investigation was carried out in the area of Crete between August 2017 and January 2018 in fourteen Health Centers, two Primary National Health Networks, four Emergency Department, eleven Intensive Care Units. The study involved 213 nurses. The Leymann Inventory of Psychological Terror, the State-Trait Anxiety Inventory and the Culture-free Self-esteem Inventories has been used.

**Results:** The average age of the participants was 41.73. The 45.5% of the sample is working in Intensive Care Units, 24.9% in Emergency Departments and 29.6% in Primary Care Units. The mean value of trait anxiety was 40.82, state anxiety 39.03, and overall anxiety 79.85 for the overall study sample. They were exposed to at least one mobbing behavior in the past 12 months, and for at least once a week, almost daily or daily the 11.3% These 24 nurses attribute this behavior to competition problems (60.9%) and jealousy (58.7%). The most nurses of the total sample (50.5%) had a middle self-esteem.

**Conclusions:** The evaluation of the results shows that the nursing staff of the overall sample of the study experiences mild anxiety symptoms. Mobbing seems to be at high rates. Early recognition of the phenomenon and its management as well as enhancing of the self-esteem should be the best practice of intervention to prevent it.

**Keywords:** Mobbing; Anxiety; Self-esteem; Nursing staff

## Introduction

Heinz Leymann was the first who defined workplace bullying that has been a part of working life for centuries and denote a specific form of workplace aggression towards employees [1,2]. According to Leymann [1] the psychologically violent behaviours he saw in workplaces in Sweden were a kind of "*workplace terrorism*", and determined it as "*a type of psychological terrorism that arises in the form of directed, systematic, unethical communication and competitive behaviour by one or more persons towards one person*".

The following definition of mobbing see widely agreed upon and it is accepted for this study: Bullying at work means; "*harassing, offending, socially excluding someone or negatively affecting someone's work tasks*". In order for the label bullying (or mobbing) to be applied to a particular activity, interaction or process it has to occur repeatedly and regularly (e.g. at least once weekly) and over a period of time (e.g. about six months) [3-7].

Studies that took part in United Kingdom [8] and Finland [9] shown prevalence rates of around 10%, whereas in the country of Austria reported results ranged from 7.8% to 26% [10]. The lack of a standardized definition and methodology applied to measure workplace bullying contribute probably to the difference in prevalence rates between populations, countries, and organizations [11].

Also, a survey conducted in nursing personnel of the Greek Emergency Departments showed that conflicts between colleagues related to harassment are 24% A research work for the effect of mobbing on the professional life of nurses in seven Hospitals of the 6th Health Region in Greece showed that nurses, men and women (71%), were victims of moral harassment during the past year and had psychosomatic symptoms (anxiety 54.3%, headaches 52%, atony 41.5%, denial of work 28%, depression 16.3% [12].

Violence in the workplace is expressed as anger, harassment, coercion, intimidation and insult [13]. It is mainly manifested by impacts such as cooperative difficulties, reduced resistance to rush and psychological reactions etc [14]. It is a chain of anti-social behaviors and an intense form of work-induced anxiety, and through this systematic and long-lasting process (systematic, repetitive, durable and progressive), the worker-victim is led to a psychological and labor extermination [15].

Anxiety was defined by Freud as "*something felt*", "*an emotional state that included feelings of consciousness, intensity, nervousness and anxiety*

accompanied by normal stimulation." Parallel to and in conjunction with Darwin's evolutionary theory, Freud observed and noted that stress was adaptive to the motivation of behavior that prompted individuals to deal with threatening situations, and that intense anxiety prevailed in most psychiatric disorders [16]. It has also prevailed, the definition of anxiety as: "*A normal physical or psychological reaction to external events that cause a strong emotional state to man. This is a long-standing difficulty or a serious personal event that lasts for at least four (4) weeks*" [17].

According to Spielberger [16], transport concern refers to "*subjective emotional state characterized by tension and asphyxia*". Permanent anxiety refers to "*the predisposition of the individual to perceive specific situations as threatening and to react with the anxiety to them*".

Spielberger [16] about permanent and temporary anxiety considers that the recruitment of the individual from both internal and external stimuli is considered as threatening, resulting in reactions of temporary anxiety. Sensory and cognitive feedback mechanisms are the ones that cause high levels of transient stress to be recognized as unpleasant by the individual. The reaction of transient anxiety is proportional to the magnitude of the intensity of the threat.

The sensory and cognitive mechanisms of feedback are those that cause high levels of temporary stress to be recognized as unpleasant by humans. The reaction of temporary anxiety is proportional to the magnitude of the intensity of the threat. Correspondingly, the duration of tension affects the stability of the trait stress response. He also notes that people with a high level of permanent anxiety perceive more situations as threatening and react with more intense transient resistance reactions. Anxiety causes people to develop specific psychological protection mechanisms to achieve the reduction of temporary anxiety [18].

Nursing, as a profession, is described as a "*high intensity profession*", the reasons have already been extensively formulated. This in itself has negative effects on the self-esteem of the nurse, both as a person and as a professional. In Greece, a survey was conducted in three (3) public hospitals in the Prefecture of Ilia during the period 05-10/2008, with a sample of 167 nurses and nursing assistants aged 20-60 years old. The statistical analysis of the questionnaire showed that 56.3% of the sample of nurses has a "*modest*" emotional state, which affects their self-esteem [19].

There are no surveys in Greece related to the correlation of work harassment with permanent, temporary anxiety and self-esteem in nursing staff. The first aim of this study was to measure the prevalence and forms of workplace bullying among the nursing personnel working in the Primary Health Care, Emergency Departments (ED) and Intensive Care Units (ICU) of Crete. The first approximation comprises the measurement of the frequency and duration of exposure to one or more of the 45 forms of bullying [20] and the second approximation include a self-reporting question relevant to bullying within the past 12 months based on a definition according to Heinz Leymann [6]. The second aim was to measure the existence of state and trait anxiety with two questionnaires [21] and the third aim was to measure the self-esteem of the nursing personnel.

## Aim

The aim of this study was to investigate the state and trait anxiety and work violence in nursing staff in Primary Health Care, in Emergency Departments (ED) and in Intensive Care Units (ICU) of five major hospitals and 11 Health Centres in the prefecture of Crete.

## Methodology

The study involved 213 nurses from five hospitals in the region of Crete. Of these, 45.5% were working in Intensive Care Units while the other 24.9% were working at the Emergency Departments and 29.6% in Primary Health Care. The sample selection was made by the method of random sampling. The inclusion criteria were: i) be nursing staff; ii) be nursing staff coming from all ICU, ED and Primary Health Care centres of Crete and the exclusion criteria was not to be a student nurse

The survey was conducted from August 2017 to January 2018 and included the voluntary and anonymous participation of nursing staff. The psychometric tools included in the study are presented below:

## Instruments

For the purpose of the present research, the French version of "*Leymann's Inventory of Psychological Terror*" (LIPT) instrument [22], the Greek Version of "*Leymann Inventory of Psychological Terror*" Instrument were applied [11], The State-Trait Anxiety Inventory (STAI) [20,21] and the Culture-free Self-esteem Inventories [23].

Leymann's Inventory of Psychological Terror consists of 45 items, each item measuring the exposure to workplace bullying the last 12 months with two response options (yes or no) [11]. In addition, two questions on the frequency were included (monthly basis, weekly, or daily) as well as the duration of bullying (years and months). In five sections are grouped the 45 bullying behaviors (1) social relationships at work (criticism, no possibility to communicate, and indifference and verbal aggression), (2) exclusion (isolation, avoidance and rejection), (3) job tasks (too many tasks, no tasks, uninteresting tasks, humiliating tasks, tasks superior, or inferior to skills), (4) personal attacks (attacks on origins or opinion, rumors, ridicule and gossiping), and (5) physical violence (physical threats and sexual annoyance). According to Leymann, those who report exposure to at least one of the 45 behaviors that concerns bulling the last 12 months, weekly or more, and for six months or longer are defined as victims of bullying.

Moreover, in the present study will be used questions included in the French version of LIPT instrument. The instrument includes the definition of workplace bullying: "*Bullying may be defined by a situation in which someone is exposed to a hostile behavior on the part of one or more persons in the work environment that aim continually and repeatedly to offend, oppress, maltreat or to exclude or isolate over a long period of time*" [4]. A) Nurses are asked whether they aware themselves as being victims of bulling within the previous year. For those considering themselves as being victims, contributing factors are further researched. B) In addition, nurses are asked whether they witnessed bullying at the current work to another employee during the past 12 months.

The State-Trait Anxiety Inventory (STAI) is a psychological inventory based on a 4-point Likert scale. It consists of 40 questions. The STAI measures two type of anxiety-state anxiety, or anxiety about an event and trait anxiety or anxiety level as personal characteristics. Higher scores are positively correlated with higher levels of anxiety.

State anxiety (S-anxiety) can be defined as discomfort, fear, nervousness, etc. and the arousal of the autonomic nervous system induced by different situations that are apprehend as dangerous and is considered temporary. Trait anxiety (T-anxiety) can be defined as feelings of worry, stress discomfort, etc. that one experiences and how people feel across typical situation daily. The State-Trait Anxiety Inventory assess both state and trait anxiety separately. Each type of anxiety has its own scale of 20 questions and the scores range from 20 to 80, with higher scores correlating with higher levels anxiety. Each scale asks twenty questions each and based on a 4-point Likert scale. Low scores show a mild form of anxiety. Median scores indicate a moderate

form of anxiety and high scores shows a severe form of anxiety. Anxiety absent questions impersonate the absence of anxiety in a statement like, "*I feel secure.*" Anxiety declares questions represent the presence of anxiety e.g. "*I feel worried.*" More examples from the STAI on anxiety absent and present questions are below. The 4-point scale for S-anxiety is as follows: (1) not at all, (2) somewhat, (3) moderately so, (4) very much so and for the 4-point scale for T-anxiety is: (1) almost never, (2) sometimes, (3) often, (4) almost always [21].

The Culture-free Self-esteem Inventories is a self-referencing questionnaire, which includes (without the lie scale) 32 statements. These statements seek to measure the general, personal and social perception of themselves (self-perception) and are divided into two groups: those that are high and those showing low self-esteem. Each question answers either with "*yes*" or with "*no*". Three self-assessment sub-scales are included: general (16 statements), social (8 statements) and personal (8 statements). There is also a lie scale o (8 statements) [23].

Permissions were obtained from the developers of the French version of LIPT instrument, the Greek version of LIPT instrument, the State-Trait Anxiety Inventory (STAI) and Culture-free Self-esteem Inventories. The time needed to fill out the questionnaire was 8-10 min.

## Study Population

The present study conducted among nurses working in primary health-care setting with the participation of 14 Health-care Centres and 5 Hospitals in the island of Crete. A total of 213 nurses take part in the study. The study was performed in the following departments: 14 Health-care Centers, 4 Emergency Departments (ED) and 11 Intensive Care Units (ICU). The study was performed during August 2017 to January 2018.

## Statistical Analysis

With respect to the statistical analysis that follows, the quantitative variables are reported based on the mean ± standard deviation (mean ± SD) as well as the median and the Interquartile Range (IQR), while for the qualitative variables we have the corresponding frequencies and percentages. Depending on the appropriate statistical and/or graphic controls, it is recommended that median and the Interquartile Range (median, IQR) are used as representative descriptive measures.

The Shapiro-Wilk statistical control was used to check the regularity of the quantitative variables in the questionnaire. The existence of regularity has also been confirmed or rejected by the visual overview of the corresponding histograms, the normal Q-Q plots and box-plots of the variables. At the same time, the appropriate parametric and non-parametric statistical examinations were conducted to investigate any differences between the three structures (ICU, KY/PEDY and TEI) and the scales under study, determining the level of significance at 0.05. In all cases it was necessary to use accurate tests and/or model-carousel simulation (10000 samples). Also, where necessary, the Levene test was used for the homogeneity of the difference.

Finally, reliability and internal consistency was assessed by internal consistency using Cronbach's alpha test. Statistical analysis was performed using the statistical software IBM SPSS statistics (version 21.0). A p value<0.05 was considered statistically significant.

## Ethics Approval

The researcher submitted the research protocol for obtaining the necessary written permissions from the Research and Ethics Committees of the University General Hospital of Heraklion, General Hospital of Heraklion "*Venizelio Pananio*", General Hospital of Chania, General Hospital of Agios Nikolaos, General Hospital of Rethymno and the 7th Health District of Crete. The permissions of the above organizations were given provided that the results of the study will be announced in the Administration of the 7th Health District of Crete. After the permissions of the research were given, the participants were approached. Written consent was given by all participants to participate in the study.

## Results

### Reliability of Leymann's Inventory of Psychological Terror (LIPT) instrument

The reliability of LIPT instrument expressed by Cronbach α was 0.938 suggesting high internal consistency.

### Characteristics of the study sample

In this study, the participants were nursing staff (n=213) and the majority of the participants 89.2% of the sample were women and ICU nurses represented 45.5% of the study population. Mean age for the total sample was 41.73 (SD=7.33 years). The 75.1% (n=160) of the sample were married and followed by 23.0% (n=23%) that were unmarried. The majority of the sample 64.8% (n=138) were graduates of Technological Educational Institute (TEI) also, 8.9% of the sample (n=18) had a master's degree and one person had a PhD. Demographic characteristics of the research population are shown in Table 1. In regard to the mean length of employment was 15.78 (SD=8.49 years). The average of work in the current department was 8.00 years (SD=10.50 years) as shown in below Table 2.

| Characteristics | | n (%) |
|---|---|---|
| **Departments** | | |
| | Intensive Care Unit | 97 (45.5) |
| | Primary Care | 63 (29.6) |
| | Emergency Department | 53 (24.9) |
| **Gender** | | |
| | Man | 23 (10.8) |
| | Women | 190 (89.2) |
| **Marital Status** | | |
| | Married | 160 (75.1) |
| | Unmarried | 49 (23.0) |
| | Widowed/ Divorced | 4 (1.9) |
| **Educational Level** | | |
| | Secondary School | 43 (20.2) |
| | Technological Educational Institute | 138 (64.8) |
| | University | 13 (6.1) |
| | Master degree | 18 (8.4) |
| | PhD | 1 (0.5) |

**Table 1:** Characteristics of the study population (N=213).

| Characteristics | | |
|---|---|---|
| **Age (years)** | | 41.73 ± 7.33* |
| **Years of work** | | 15.78 ± 8.49* |
| **Years of work in the present department** | | 8.00 (10.50)** |

* mean ± sd
**median (IQR)

**Table 2:** Descriptive characteristics among the study population (N=213).

## Prevalence of workplace bullying among nurses

According to Leymann, [1] mobbing is defined as the worker's exposure at least once a week for the past 12 months. Based on this definition, we have the following results. Among the 213 nurses that consisted the total sample of the study, 95 nurses (44.6%) were exposed to at least one bullying behavior at work within the last 12 months, whereas 24 nurses (32.43%) were exposed to at least one bullying behavior or more at least once weekly the last 12 months as shown in Table 3. There is a statistically significant difference between the three

| | Yes (%) |
|---|---|
| **Industrial Relations** | |
| Being silenced by superior | 8.5 |
| Being continuously interrupted | 10.3 |
| Being silenced by others | 14.6 |
| Being scolded and yelled | 11.3 |
| Being criticized regarding work assignments | 9.4 |
| Private life being criticized by others | 5.2 |
| Being terrorized by means of phone calls | 5.2 |
| Receiving verbal threats | 7.5 |
| Receiving written threats | 2.3 |
| Being exposed to irritating gestures/looks | 14.6 |
| Physical presence ignored, addressing only others | 9.4 |
| **They isolate you systematically** | |
| Not being talked to | 5.6 |
| Not being allowed to physically contact others | 3.3 |
| Being isolated from others at work | 3.3 |
| Conversation with colleagues is forbidden | 1.9 |
| Physical presence being ignored among others | 5.2 |
| Being addressed only in written ways | 0.5 |
| **Your professional duties have been amended as a punishment** | |
| They do not assign you jobs, you have no job | 0.9 |
| Being given meaningless work assignments | 7.5 |
| Being given work assignments far below capacity | 6.1 |
| Continuously being given new work assignments | 8.5 |
| Being given humiliating work assignments | 2.8 |
| Being given difficult work assignments far above capacity | 7.5 |
| **Attacks on your face** | |
| Being gossiped | 15.0 |
| Being exposed to slanders and lies | 12.2 |
| Being ridiculed | 4.7 |
| Being said to have a mental illness | 1.9 |
| Being forced to go through psychiatric exams | 1.9 |
| Being mocked due to a handicap that you have | 4.2 |
| Voice, gestures, and way of moving are imitated to tease | 5.6 |
| Suffering verbal attacks regarding political and religious beliefs | 3.3 |
| Being teased due to ethnic background | 3.8 |
| Being forced to do work assignments which are against your conscious | 8.9 |
| Being judged for your work in an injustice and humiliating way | 11.3 |
| Your decisions are questioned by others | 8.9 |
| Being reviled using obscene or degrading terms | 2.8 |
| Being sexually threaten | 2.3 |
| **Violence and threats of violence** | |
| Being given dangerous work assignments for your health | 4.7 |
| Despite your bad health you are forced to do work assignments that heart your health | 7.0 |
| Being physically threaten | 0.9 |
| Being physically threatened in the form of mild violence as a warning | 2.8 |
| Being physically attacked | 1.4 |
| Being forced to spend big sums of money | 0.5 |
| Workplace or home is damaged by others | 1.9 |
| Being sexually attacked | 0.0 |

**Table 3:** Prevalence of exposure to each of the 45 mobbing behaviors among the study population during the last 12 months (N=213).

structures (p=0.016) in the percentages of those who said they were exposed to at least one mobbing (out of 45) in the last 12 months. We observe that the highest rate of exposure to at least one moral harassment behavior is reported in the Emergency Department (58.5%), while the lowest percentage in Primary Care (31.7%) as shown in Table 4. With regard to the frequency of the mobbing in the last 12 months and the answers "*rarely*" or "*at least once a month*" and "*at least once a week*" or "*almost daily*" or "*daily*", compared to the structures, there is no statistically significant difference, as shown in Table 5. The percentage of the nurses still continuing to experience similar situations is 69.23% (n=54). The median of the time period for which someone with these conditions had come was 12 months (IQR=51.75). The prevalence of the victims of workplace bullying among nurses working at the Intensive Care Units was 10 (41.7%) whereas among those working at the Emergency Departments (ED) was 10(41.7%), and among nurses working at the Primary Health Care was 4 (16.6%).

According to Niedhammer et al. [20] definition 16.9% of the total sample reported exposure in bulling behaviors at their workplace the last 12 months. Between them 16.5%, 9.5% and 26.4% of the nurses worked at the ICU, Primary Health Care and Emergency Department respectively. Finally, based on the definition of psychological violence at work, there was a statistically significant difference between the three departments (p=0.047), with the highest percentage reported by Emergency Departments (26.4%).

| | | | Exposure to at least one moral harassment behavior | | Total |
|---|---|---|---|---|---|
| | | | No | Yes | |
| **Departments** | ICU | N | 53 | 44 | 97 |
| | | % | 54.6% | 45.4% | 100.0% |
| | Primary Care | N | 43 | 20 | 63 |
| | | % | 68.3% | 31.7% | 100.0% |
| | ED | N | 22 | 31 | 53 |
| | | % | 41.5% | 58.5% | 100.0% |
| **Total** | | N | 118 | 95 | 213 |
| | | % | 55.4% | 44.6% | 100.0% |

$\chi^2(2)=8.374$; p=0.016

**Table 4:** Mobbing in departments among the study population during the last 12 months (N=213).

| | | | How often have you been confronted with one or more of the above situations in the last 12 months? | | Total |
|---|---|---|---|---|---|
| | | | Rarely/At least once a month | At least once a week/ Almost daily/ Everyday | |
| **Departments** | ICU | n | 23 | 10 | 33 |
| | | % | 69.7% | 30.3% | 100.0% |
| | Primary Care | n | 12 | 4 | 16 |
| | | % | 75.0% | 25.0% | 100.0% |
| | ED | n | 15 | 10 | 25 |
| | | % | 60.0% | 40.0% | 100.0% |
| **Total** | | n | 50 | 24 | 74 |
| | | % | 67.6% | 32.4% | 100.0% |

$\chi^2(2)=1.125$; p=0.625

**Table 5:** Frequency of mobbing in departments.

Moreover colleagues, chiefs or persons holding higher rank in hierarchy were most commonly recognized as mobbers between participants (43.9%, 43.9% respectively). With regard to the sex of the persons who have practiced psychological violence, 43.31% were women, 13.58% were men and 43.31% were both of them (women and men). The median of the number of people who were against those who received psychological violence during this period was 2 (IQR=2).

## Bullying behaviors and frequency of exposure to workplace bullying

The most common mobbing behaviors reported among the participants were the following: "*Being badly criticized behind your back*" (15.0%); with the same percentage appears "*being continuously interrupted by others*" and "*being accepted contemptuous glances and/or contemptuous gestures*" (14.6%); "*being exposed to slanders and lies*" (12.2%); and with the same percentage appears "*being vilified and shouted*" and "*being criticized regarding work assignments*" (11.3%).

According to the definition of mobbing as proposed by Niedhammer et al. [20], 29.3% of the study participants answered positively regarding exposure to hostile behaviors within the last 12 months (45.4% of those working at the ICU, 31.7% of those working in Primary Care and 58.5 of those working in Emergency Department respectively). There is a statistically significant result (p=0.016). We observe that the highest rate of exposure to at least one behavior of moral harassment is reported in Emergency Department (58.5%), while the lowest rate in Primary Care (31.7%).

When applying the definition of mobbing as proposed by Niedhammer et al. [20], 36 nurses (16.9%) of the study participants answered that having been subjected to psychological violence at work in the last 12 months (16, 0.5% of those working at the ICU, 9.5% of those working at the Primary Health Care and 26.4% of those working at the Emergancy Department, respectively). The most common causes responsible for the exposure to hostile behaviors for the total sample were "*competitive behaviors between employees*" (60.9%) and "*jealousy*" (58.7%), followed by "*a generally bad working environment*" (17.0%) and "*problems in the management and professional position*" (14.2%). The 30.0% of the total sample of the individuals reported that they became observers of mobbing behaviors against another employee during the previous year.

## Reliability of the State-Trait Anxiety Inventory (STAI)

The reliability of STAI instrument expressed by Cronbach α was 0.940 suggesting high internal consistency (State anxiety: alpha=0.895, Trait anxiety: alpha=0.907).

## Prevalence of state-trait anxiety

The mean value of trait anxiety was 40.82, the mean value of state anxiety was 39.03 and the total anxiety was 79.85 (Table 6).

Concerning the first subscale for the emotional state (trait anxiety) of the interviewee at the time of completing the questionnaire we have the following results. Based on ANOVA, there is no statistically significant difference in the mean score of Spielberger [1], between the three structures: $F_{(2.210)}=1.991$, p=0.139, Intensive Care Units (ICU): 41.74 ± 11.59, Primary Care: 35.57 ± 9.62, Emergency Department (ED): 41.81 ± 10.04. Based on the Tukey HSD test for comparisons between two structures, there was no statistically significant difference between ICU-Primary Care (p=0.160), nor between ICU/ED (p=0.236) nor between Primary Care-ED (p=0.236).

Regarding the second sub-scale for the moral status (state anxiety) of the persons how they feels general in their lives, based on ANOVA, there is no statistically significant difference in the mean score of this unit of the three structures: $F_{(2.210)}=2.752$, p=0.066, ICU: 40.28 ± 10.58, Primary Care: 36.59 ± 8.50, ED: 39.66 ± 10.44. Based on the Tukey HSD for comparisons between two structures, there was no statistically significant difference between the ICU-Primary Care (p=0.060), neither between the ICU-ED (p=0.930) nor between the Primary Care-ED (p=0.226).

Regarding Spielberger's overall scale and overall score, we have the following results. First of all, the homogeneity of the dispersion did not apply, so we proceeded to the Welch test, which resulted in a statistically significant difference between the three groups, p=0.039, ICU: 82.02 ± 21.16, Primary Care: 75.16 ± 15.53, 19.22. However, based on the two-time comparisons and on the basis of the Tamhane and Dunett T3

| Scales | n (%) | Mean | SD | Median | IQR | Range |
|---|---|---|---|---|---|---|
| **State-Trait Anxiety Inventory (STAI)** | | | | | | |
| STAI-Part 1 | | 40.82 | 10.72 | 39.00 | 16.00 | 23-68 |
| STAI-Part 2 | | 39.03 | 10.06 | 38.00 | 13.50 | 22-70 |
| **STAI-(Part 1 & Part 2)** | | **79.85** | **19.32** | **77.00** | **25.00** | **47-138** |
| | | | | | | |
| **Culture-free Self-esteem Inventories (James Battle),** | | | | | | |
| General self-esteem* | | 12.27 | 2.89 | 13.00 | 3.50 | 2-16 |
| Social self-esteem* | | 6.35 | 1.38 | 7.00 | 1.00 | 1-8 |
| Personal self-esteem* | | 3.86 | 2.16 | 4.00 | 3.50 | 0-8 |
| Scale of lie | | 4.77 | 1.56 | 5.00 | 2.00 | 0-8 |
| | | | | | | |
| **Total self-esteem** | | 22.47 | 5.28 | 23.00 | 7.00 | 4-32 |
| | | | | | | |
| Too low | 17 (8.0) | | | | | |
| Low | 37 (17.4) | | | | | |
| Middle | 110 (51.6) | | | | | |
| Hugh | 32 (15.0) | | | | | |
| Very Hugh | 17 (8.0) | | | | | |

*(IQRs) as representative descriptive measures for these scales

**Table 6:** Descriptive characteristics of the scales among the study population (N=213).

controls, there was no statistically significant result between the ICU-Primary Care (p=0.057), nor between the ICU-ED (p=0.998) between Primary Care-ED (p=0.162).

### Reliability of Culture-free Self-esteem Inventories (James Battle)

The reliability of Culture-free Self-esteem Inventories (James Battle) expressed by Cronbach α was 0.763 suggesting high internal consistency (General self-esteem: alpha=0.737, Social self-esteem: alpha=0.442, Personal self-esteem: alpha=0.724, Lie scale: alpha=0.525, General self-esteem: alpha=0.763).

### Valuation of self-esteem

From the analysis of the results of the Culture-free Self-esteem Inventories (James Battle), it was found that 51.6% of the nurses who participated in the study had a middle self-esteem, while the lowest percentage of the total sample of 8.0% showed very high self-esteem. Also, it was found that 8.0% had very low self-esteem, 17.4% had low self-esteem and 15% had high self-esteem. Also, the results showed that the General self-esteem was 12.27 (mean), the Social self-esteem 6.35 (mean), the Personal self-esteem was 3.86 (mean) and the scale of lie was 4.77 Table 6. Regarding the Culture-free Self-esteem Inventories and based on the chi-square test was applied. There are no statistically significant differences between the three structures (ICU, ED, and Primary Care) compared to the level of self-esteem, despite the fairly large difference in many percentages. Something that is probably due to the existence of many categories at the level of self-esteem. With regard to the level of self-esteem for the three structures (ICU, ED, Primary Care) we had the following results: ICU: very low self-esteem: (8.2%), low self-esteem (17.5%), middle self-esteem (50.5%), high self-esteem (13.4%), very high self-esteem (10.3%), ED: very low self-esteem: (11.3%), low self-esteem (26.4%), middle self-esteem (37.7%), high self-esteem (20.8%), very high self-esteem (3.8%), Primary Care: very low self-esteem: (4.8%), low self-esteem (9.5%), middle self-esteem (65.1%), high self-esteem (12.7%), very high self-esteem (7.9%) (Table 7).

### Discussion

The present study investigated the anxiety levels, work violence and self-esteem in a sample of 213 nursing staff members in five major hospitals and eleven Health Centres in the prefecture of Crete.

In the present study, they have been exposed to at least one mobbing behavior in the last 12 months and at least once a week, almost daily or daily the 11.3% of the total sample (n=24), and these people, according to Leymann [1] are the victims of mobbing. In a relevant study carried out in Cyprus in 2014 and the study sample was made up of 136 health professionals (44 general practitioners, 50 nurses, 42 other health professionals) working in Primary Health Care in Nicosia

and was used the same questionnaire of the Leymann Inventory of Psychological Terrorization (LIPT) as used in the present study, the prevalence of "*mobbing syndrome*" among health professionals according to Leymann's official definition was 8.8% of the total sample reported exposure at least one behavioral psychological violence in the last 12 months, while 11% reported exposure to at least one "*mobbing behaviour*" at least once a week. In another study when the Leymann definition was applied, 5.9% of the participants reported exposure to at least one bullying behavior at least once a week and for at least 6 months [11].

The analysis of the data from the present study showed that the most common "*mobbing*" behaviors reported among the participants were: "*they speak badly for you behind your back*" and the same percentage follows "*they interrupt you while you express*" 15.0%) , "*receive scornful eyes and/or scornful gestures*" (14.6%), "*spread false rumors about you*", and with the same percentage they appear to " *revile you and shout*" (12.2%) and finally, they "*they are constantly criticizing your work*" (11.3%).

In the present study, the less frequent "*mobbing behaviors*" identified among nursing staff were "*sexual assault*" (0.0%), "*they are only addressed to you in writing*" (0.5%), and " they are causing you damage by trying to hurts you financially (0.5%)".

On the other hand, the less frequent "*mobbing behaviors*" identified among health professionals in Primary Health Care was: "*you've been sexually attacked,*" "*psychological violence,*" "*physical violence,*" "*oral or sexual suggestions,*" "*want to force you to undergo a psychiatric examination*" and "*accept written threats*" (0% for all of the statements above) [24].

The 63.5% of the nurses who participated in the survey stated that they had received psychological violence by a "*colleague*" (this is why the total figure exceeds 100%), which accounts for 43.9% of all the answers and with the same percentage of "*people with a higher hierarchical position or superior*". Also, with regard to the gender that commit psychological violence, the 43.2% of the nurses answered that were "*women*" , with the same percentage being "*both men and women*" and the median price of the number of people who commit psychological violence during this period was 2 (IQR=2). According to Zachariadou et al. [11] states that senior officials were identified as those who practiced psychological violence (57.5%). Health professionals working in public hospitals and Primary Health Care reported having faced hostile attitudes mainly by their superiors (58.3% *vs.* 55.9%, respectively). As for the sex of perpetrators, women were most often identified as those who had commit psychological violence compared to men, but there was no statistical significance (69.1% *vs.* 19.8% p=0.147) [25]. Another research in Turkey by Picakciefe et al. [25] to people working in the Primary Care, 70.3% of the victims was superiors. In the present study

| | | | Level of self-esteem | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | | | Very Low | Low | Middle | High | Very high | |
| Department | ICU | N | 8 | 17 | 49 | 13 | 10 | 97 |
| | | % | 8.2% | 17.5% | 50.5% | 13.4% | 10.3% | 100.0% |
| | Primary Care | N | 3 | 6 | 41 | 8 | 5 | 63 |
| | | % | 4.8% | 9.5% | 65.1% | 12.7% | 7.9% | 100.0% |
| | ED | N | 6 | 14 | 20 | 11 | 2 | 53 |
| | | % | 11.3% | 26.4% | 37.7% | 20.8% | 3.8% | 100.0% |
| Total | | N | 17 | 37 | 110 | 32 | 17 | 213 |
| | | % | 8.0% | 17.4% | 51.6% | 15.0% | 8.0% | 100.0% |

$\chi^2(8)=13.898$; p=0.080

**Table 7:** Level of self-esteem among the study population (N=213).

the participants stated that they discussed the problems they faced in their workplace related with violence and 68.3% of the respondents said that among other things they had spoken with their colleague. Also, only 2 of respondents said they did not have a person they could contact but they would like to have, while 3 people said they did not have a person to contact or they did not need. In a study of Zachariadou et al. [11] it is reported that health professionals working at major public hospitals in Cyprus have discussed their exposure to mobbing behavior at their workplace with a colleague of 67.7%, while the 30.6% with a member of his family.

By applying the definition "*Psychological violence at work can be defined as the situation in which an individual is subjected to hostile attitudes by one or more individuals in his working environment which in a continuous and repeated manner seek to destroy him, to oppress him, to abuse him or even to exclude or isolate them for a long time*". 36 nurses (16.9%) said they have been subjected to psychological violence in their work in the last 12 months.

This behavior was attributed to "*competition problems between individuals*" (60.9%) and "*jealousy*" (58.7%). According to the Chira et al. [24] study, 30 workers (26.3%) stated that they had been subjected to psychological violence in the last year according to this definition and this behavior was attributed to "*poor organization of work*" (43.3%) followed by "*problems in administration*" (40%). According to Zachariadou et al. [11], 29.3% of respondents responded positively to exposure to hostile behavior over the last 12 months according to the definition (31.4% of those working in the large public hospitals in Cyprus and 26.3% of those working in Primary Health Care respectively). The most common causes of exposure to hostile attitudes towards health professionals working at major public hospitals in Cyprus were "*management/ placement problems at work 33.3%*" followed by "*generally poor working atmosphere 31.3%,*" "*poor organization 29.2%*" and "*jealousy 29.2%*". In Primary Health Care, the most common causes were "*poor organization 43.3%,*" followed by "*problems in the administration/placement at work 40%*" and "*poor working atmosphere 33.3%*" and with the same percentage "*competition problems among individuals*".

To the question: "*You have perceived psychological violence against someone else in your workplace in the last 12 months,*" 30.0% of nursing staff in the sample of this survey reported that they have perceived such a situation. A similar study reported 38 workers (31.7%) who responded positively to the question. In another survey, respondents reported that they had notice (43.4%) bullying behavior against another employee in the previous year. Health professionals working in hospitals in Cyprus noticed that one or more of their colleagues were harassed more frequently than primary care workers in Cyprus (52.2% *vs.* 31.4%), which was statistically significant (p=0.001). In England, Quine [26], a health care practitioner, it was found that 42% of the participants had witnessed intimidation behaviors against their colleagues.

From the analysis of the results of the STAI questionnaire it was found that the mean value of the trait anxiety was 40.82 while the mean value of the state anxiety was 39.03 and the mean value of the total anxiety was 79.85. A study carried out in 2010 in nursing personnel in the sixth Healthcare Region of Greece working in nephrologic centers showed that trait anxiety was 41.4 and state anxiety 38.6 [27]. Finally, in a research that investigated the trait and state anxiety in nursing personnel working at Thessaly Health Centres, they showed high rates of trait anxiety, which exceeded the corresponding rates for the Greek population [28].

In the present study, the results of the Battle Questionnaire for Self-Esteem showed that 51.6% of the nursing staff involved in the study had a middle self-esteem, while the lowest percentage of the total sample (8.0%) had a very high self-esteem. Researchers conducted a study in Wales on mental health community nurses who found that most nurses had middle self-esteem [29]. According to Randle [30], the result of continuous exposure to bullying includes the reduced of self-esteem .

## Conclusions

The evaluation of the results shows that the nursing staff of the overall sample of the study experiences mild anxiety symptoms, which necessitate the training of nursing staff in symptom management to avoid increasing their intensity. Mobbing seems to be at high rates. Prevalence of mobbing is an existing reality in the health sector of Crete. Early recognition of the phenomenon and its management as well as enhancing of the self-esteem should be the best practice of intervention to prevent it.

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# Evaluation of Clinical Learning Experience on Concept Mapping for Final Year Nursing Students in a Private Hospital

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## Abstract

**Aim:** The present study is to apply concept mapping into the learning strategy in the clinical areas for the final semester nursing students understanding of patient care and patient safety process.

**Objectives:** To compare students' level of understanding knowledge on concept mapping between control and experimental group post intervention training; to determine on the impact of training of concept mapping on students' confidence level in the clinical areas; To determine students' understanding on the application of knowledge in patient care using concept mapping in the clinical areas; to determine on students' satisfaction level learning through concept mapping in the clinical areas.

**Methods:** This is a case study of a group of students in the final year of the diploma in nursing program. It is a classic experimental design that consists of experimental and control group.

**Results:** This research has given a positive impact to prove that after the intervention of concept mapping for the last year's nursing student showed significant interrelationships. Intervention concept mapping can enhance the learning more meaningful and can be improve through their motivation, sharpens thinking, deepens stimulate higher learning and thinking processes with all items to be measured in the evaluation of the CM. From the point of realized by students, it can have implications for clarifying the learning objectives, refining instructional strategies, identifying appropriate assessment tools, understanding how the learning objectives are being and meanings to the clinical practice of decision-making.

**Conclusion:** Concept mapping is a learning strategy in the clinical areas for the final semester nursing students understanding of patient care and patient safety process. The CM is established as a significant strategy as well as an approach to assimilate matters involved in the teaching and learning practises of the clinical region.

**Keywords:** Concept mapping; Nursing education; Clinical teaching; Learning strategy

## Introduction

The clinical learning is a major part of nursing education. Lack of students' exposure to the clinical learning environment is one of the most important factors affecting the teaching-learning process in clinical settings. Unlike classroom education, clinical training in nursing occurs in a complex clinical learning environment which is influenced by many factors. This environment provides an opportunity for nursing students to learn experimentally and to convert theoretical knowledge to a variety of mental, psychological, and psychomotor skills which are of significance for patient care.

A decisive aspect of having positive learning experiences is described to be the relationship between the student and the nurse supervisor [1]. Regular feedback, reflections, and practical advice from the supervisor are very important factors for improving the students' practical competence, confidence, motivation, and self-esteem [2].

Interpersonal relationships between students and health care providers was said to be one of the students' satisfaction learning in the clinical areas. Patients, peer, ward staff mentor and nursing instructors are the major stakeholders involved to provide experience-rich and supportive relationship.

High levels of satisfaction have been reported when students had someone to ensure that their learning needs were addressed, when the clinical staffs were well briefed, when the students were treated with respect and appreciated as well, it and being included as part of the health care team.

Other factors that affect students learning experience in the clinical areas are the effective clinical teachers. It requires an expert in the substantive areas, good instructional skills (e.g.) well organized; explanations are clear and understood by students. The nursing instructors should have strong interpersonal and communication skills to serve as a role model for students and new graduates, besides being enthusiastic and motivated. Equally important are the abilities to assess the learning and performance in all learning areas such as; the simulation and skills lab, and the clinical setting [3].

This paper reports findings from a research project that was undertaken in one of the private hospital in Malaysia to enhance application of concept mapping into the learning strategy in the clinical areas for the final semester nursing students' understanding of patient care and patient safety process. This paper focuses on the results pertinent to the following questions:

- What is the overall learning experience of the final year nursing students in transforming the knowledge of patient care after using the concept mapping approach in the clinical areas?
- What is the overall impact on training of concept mapping on student's confidence level of the final year nursing students in transforming the knowledge of patient care after using the concept mapping approach in the clinical areas?
- What is the difference in level of experience of each student learning after the application of concept mapping?
- What is the relationship between the learning experience of application of knowledge of patient care and the rest of the learning experiences?

## Literature Review

Description studies on the use of concept mapping in clinical teaching were reviewed. The literature review includes:

- The effectiveness of concept mapping as a teaching method for nursing students.
- Concept mapping in the clinical setting.
- Process of learning and concept mapping.
- Critical thinking and concept mapping and the conclusion.

### Effectiveness of concept mapping as teaching instrument

Several research studies have reported the effectiveness of concept mapping as teaching/learning methods in nursing. Rooda et al. [4] explored the use of concept mapping with final year students in a research course. This study noted increased academic performance in the experimental group that used concept mapping as opposed to a control group.

Better educated nurses with complex skills and abilities are required to deliver safe and quality patient care in a health care system that continually changes as per the National Advisory Council on Nurse Education and Practice [5,6].

Nursing graduates need to be prepared to not only be compassionate caregivers, but need to be highly skilled problem solvers and critical thinkers. Nursing graduates also need to be culturally competent to care for a diverse population and technologically practicality to meet the advancing technological health care system.

Concept mapping reveals the process can have a powerful effect on learning. Concept mapping can move learners toward more in-depth learning, such as meaningful learning, by facilitating the process of linking new concepts with existing knowledge and experience found students who created a concept map while taking notes had a better test recall, able to access information more quickly during tests, scored better on content posted than students who did not have the concept mapping experience [7,8]. Therefore, concluded that the understanding of the students' care plans could be improved when they see a representation of the main concepts and relationships between those concepts. With that the researchers are of the opinion that as the nursing care in the community is often complex in nature and changes

in each setting time. The researchers agreed and decided that concept mapping is an effective learning instrument to help students apply new knowledge and skills to clients with healthcare needs in a clinical setting. Students can be served better if they are helped to learn how to process new information rather than to memorize cares that are required in a specific setting.

In Malaysia, participants in a study were a heterogeneous group of students consisting (n=47) for Master Program in Technical and Vocational Education at the University Tun Hussein Onn Malaysia was conducted applying concept map. Though, these are not nursing students, as studies with concept maps for nursing students are still very sparse and limited in Malaysia.

### Concept mapping in the clinical setting

Concept maps could be useful in student preparation for clinical experiences. It could be taught to nursing students to assist them in organizing the data obtained in pre-planning for clinical experience and then presented at pre- and/or post-clinical conferences.

The only instructions that these particular students were given about constructing a map were:-

- There was no right or wrong way to do the map.
- The map should be what they felt was useful information.
- To take risks and try out different representations.

The processing of information that occurs during concept map construction requires and encourages meaningful learning.

### Process of learning and concept mapping

Concepts and propositions are organized with the most general, most important concepts at the top of the map, and with progressively more specific, less important concepts lying under the more inclusive concepts. The specific structure is context-dependent. Map construction is done by identifying relevant concepts in the material.

### Critical thinking and concept mapping

Nursing educators agreed that critical thinking is needed and should be taught and developed in nursing school. As there are varieties of teaching methods of critical thinking, there is a need for educators understand which pattern or strategies are the best and most effective. In their studies, Kostovich and Pudelko et al. [9,10] have proposed that it is good to identify the learning styles of students would be beneficial in understanding what strategies would promote critical thinking development in nursing students.

Critical thinking in nursing for clinical decision-making is the ability to think systematic and logical manner, ensure safe nursing practice, quality care, competent use of thinking skills, abilities for sound clinical judgments and safe decision-making [9].

Ideal critical thinker is habitually inquisitive, well informed, trustful, open minded, flexible, fair-minded in evaluation, honest, prudent when making judgement, willing to reconsider, clear, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, persistent seeking results.

The specific steps which were from the studies of Fallis [11] on how to create a concept mapping which is based on the scenarios was presented to the students, though, the study did not discuss more on any other methods they applied during the introductory class session

apart from verbal presentation. Equally, they were divided in groups; the students completed six maps which were based on six scenarios and concepts from the Roy's Adaptation Model as cited by Advisor [12] dealing with physical functions (activity and rest, fluids and electrolytes, neuroendocrine, sensory perception, and sexuality) and their role functions [13,14].

After the exercise, the researchers scoured the maps using the modified system based on the concept mapping scoring criteria by Novak and Gowin [15]. They were analyzed in four categories: concept links (2 points each), cross-links (10 points each), hierarchies (5 points each), and examples (1 point each). Thirty (30) was the highest score for a map. The whole draft of the concept maps for each group was scored. The study did not address who scored the highest and how many they were. "Proposition inventory" a qualitative evaluation tool was used in order, so as to be able "to account for the variation in the quality of concept maps" [15]. The tool was not described or the reliability or even the validity of it to either.

A concept is an actual consistency in events or objects labeled by a label. Concept maps are Novak and Gowin first introduced concept mapping in 1984 to facilitate the process of meaningful learning. They defined the concept map as a schematic diagram that represents key concepts in a framework of propositions. The authors also outlined criteria that can be used by nurse educator tools for organizing and representing knowledge in networks of concepts and linking statements about a problem or subject [15].

The central box or circle can be the patient with the Lines and arrows coming from the patient which can lead to medical and nursing diagnoses. Hence more added concepts such as symptoms, goals, interventions, and evaluation approaches can all be additional. It can become much too complex for a reader to decipher when too much information is added to a single concept map, another alternatives is to divide the task into two concept maps; one for care planning and one more for pathophysiology. If diagnoses, goals and interventions are placed in different shaped figures such as circles, octagons, and triangles it is sometimes easier to follow a care map.

There are multiple structures used for concept mapping which is to make certain that the concept mapping is used broadly in nursing education. Students may use them as a note taking or study tool. Thus, the nursing faculty may employ them as a teaching strategy in the classroom. Concept mapping is an effective way to teach learners on how to think approximately regarding concepts in addition to see the big picture of by what means details and variables in a condition appropriate together.

## Objectives

In the nursing education, Concept mapping have been used as a method for students to organize and analyse data. This review article examines empirical studies on the use of concept maps as a compare students' level of understanding knowledge on concept mapping; the impact of training of concept mapping on students' confidence level in the clinical areas; Its implications to students' understanding on the application of knowledge in patient care using concept mapping in the clinical areas and students' satisfaction level learning through concept mapping in the clinical areas will also be discussed.

## Research Methodology

### Design

This is a classic experimental design with After Post-test Only Experimental Design. For this kind of designed as according to Nirmala et al. [5], the design is composed on two randomly assigned group but no pre-test is required before the time of implementation to both group,

As for this study the explanation for the above designs (classic experimental design with After Post-test only experimental design by Nirmala et al. [5]. In this particular study, the cause and effect relationship of students learning experiences through concept mapping will be determined from the experimental and the control group of 22 students in each group.

This study focuses only on post-test. A post-test would provide information on the outcome of concept mapping, especially the student's satisfaction level of learning in the clinical area.

### Study location

The study was conducted at the KPJ Perdana Specialist Hospital (PdSH) in Kota Bharu, Kelantan. It is situated on the east coast of Malaysia. It is the 11th hospital under the care of KPJ Health Berhad, the health care division of Johor Corporation and one of the leading health care providers in Malaysia. The hospital was established in 2001, occupying an area of 87,802 sq.ft. It started operation for outpatient care in the year 2001 and inpatients in 2002, and has a maximum capacity of 124-beds with a daily inpatient capacity of 103 beds. As part of the inpatients and outpatients provided by the hospital, the multi-disciplinary care provided by PERDANA includes a host of up-to date support facilities. The hospital has about seven departments which are medical, surgical, gynaecology, obstetrics, nursery, urology and orthopaedics

### Target population and sample

The population of the study is nursing students of KPJ Healthcare University Colleges in Nilai and students from the KPJ International College, Johor Baharu. Those students were posted to KPJ Perdana Specialist Hospital, Kota Bharu, Kelantan for a clinical placement. When the study was conducted, 44 students were posted by both institutions to this hospital from January to July 2017. The sample population was the semester 8 population of the nursing students. However, since, the study will be conducted with only students at KPJ Hospital Kelantan; the sample may not be representative of characteristics, such as age, gender, ethnicity, of other campus of KPJ Colleges or other health colleges in Malaysia. This limits the ability to generalize the findings to the entire student population of KPJ other locations.

The collection of data runs from January to June 2017. The two groups of students from KPJUC and KPJIC will alternately perform the concept mapping approach of obtaining the learning experience in the clinical areas.

Students were randomly divided from the month of January to February 7 students from KPJUC will do the concept mapping and the 7 students from KPJIC will be the control group. Then followed by the month of March till April, 8 students from KPJUC will be the control

and 8 students from KPJIC performed the concept mapping approach. The same thing goes into the month of May till June 2017.

### Inclusion criteria

The studies provide useful information about concept maps being used in the clinical area in one of the private hospital in Malaysia. This study contain of the expenditure of concept mapping as an instrument that improve students' meaningful learning and knowledge in the clinical area, as a way to expand students' critical thinking skills. The inclusive criteria were student nurses in the final year or semester 8 from both institutions KPJUC and KPJIC placed in the KPJ Perdana Specialist Hospital to fulfil the 8 weeks clinical placement from January till June 2017.

### Exclusive criteria

Nursing students from KPJUC and KPJIC of different semester placed in the KPJ Perdana Specialist Hospital to fulfil the 8 weeks clinical placement from January till June 2017.

## Results

### Data extraction and analysis

The researcher analyzed the data using the IBM SPSS version 23 software. Descriptive statistics were measured for the following variables; 1) understanding on the concept mapping, 2) impact of training, 3) application of knowledge, and 4) evaluation on concept mapping.

| Component | Understanding of concept mapping | | | Impact of training | | | Application of knowledge | | | Evaluation on concept mapping | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sum | M | SD | Sum | M | SD | Sum | M | SD | Sum | M | SD |
| Traditional method | 554 | 26.38 | 4.86 | 893 | 42.52 | 6.74 | 894 | 42.57 | 7.91 | 952 | 45.33 | 6.27 |
| Concept mapping method | 812 | 36.91 | 3.25 | 1050 | 47.72 | 3.51 | 1108 | 50.36 | 3.5 | 1117 | 50.77 | 4.32 |

**Table 1:** Descriptive statistics to measure the scale with four objective of question.

The above Table 1 shows descriptive statistics of the four variables; understanding of concept mapping, impact of training, application of knowledge and evaluation on concept mapping. The first descriptive statistics measures understanding of concept mapping shows the traditional method sum is 554, mean 6.38 and the SD 4.86 while in the concept mapping methods for understanding of concept mapping displays sum of 812, mean 36.91 and SD 3.25. This show mean for concept mapping is higher as 36.91 compared with the traditional method which is 26.38.

Meanwhile from the Table 1 above it shows that in the impact of training, the sum for the traditional method is 893 and the sum for concept mapping is 1050. Mean for traditional method is 42.52 and the mean for concept mapping 47.72. This was followed by the SD for traditional method is 6.74 and SD for concept mapping group is 3.5. The results of mean shows that the mean for concept mapping is higher than the mean for traditional method group.

Descriptive statistics for the next variable is application of knowledge. The sum for the traditional method is 894 and for concept mapping method the sum is 1108. The SD traditional method is 7.91 and the SD for the concept mapping method is 3.50. Mean for traditional method is 42.57 and the mean for concept mapping method is 50.36. These appearances that the mean for concept mapping is higher than the traditional method.

Furthermore, for the scale with fourth objective of question on evaluation of concept mapping sum traditional method is 952 and concept mapping method 1117. The traditional method SD is 6.27 and the concept mapping is 4:32. While the mean for traditional method is 45.33 compared to concept mapping that is 50.77. It is shows the concept mapping approach are better because the mean is higher than the traditional method.

## Discussion

Concept mapping have been used to serve as directional aids for hypermedia, as a support for understanding, for association of educational experiences found in such ways such as to improve affective conditions for learning, as assistance or another to out-of-date writing, in developing the critical thinking skills.

The chapter is the discussion of the study on the level of understanding knowledge, Impact of training on student's confidence level, Application of knowledge into patient care and evaluation of the application of concept mapping in the clinical areas.

Further down is the discussion about clinical evaluation of learning experience on concept mapping for final year nursing students in a clinical placement.

In this study, 44 (100%) of the survey were successfully returned. This is considered as a representative of the population. Most of the respondent's demographic characteristics distribution reflects the distribution of the population. The rate of the respondent was also higher than previous research with similar field.

Furthermore with the higher rate of the respondent in order to answer the research objectives, the summary of the findings was divided into a few sections. Those sections were:- (1) Descriptive statistics to measure the scale with four objective of question (2) General knowledge of group exposed to concept mapping and those exposed to traditional (3) Students' understanding on the application of knowledge into patient care using concept Mapping in the clinical areas and those exposed to traditional (4) Students confidence level in the clinical areas on concept mapping and traditional method (5) Level of satisfaction learning using concept mapping and traditional method in clinical setting area.

Based on the findings of the study, nursing educators should design and evaluate teaching strategies that will enable nurses to develop these

cognitive and conceptual abilities, which will lead to improved performance and patient care outcomes. Focusing on educational strategies, such as concept mapping, appropriate to the learning needs of novice and advanced beginner nurses, facilitates the transformation of novice nurses into competent professionals.

## Conclusion

Concept mapping is such a strategy of learning or teaching. It is not a complete illustration of the significant concepts and ideas the learner knows. A students and instructors can purposefully expand, to meaningful learning and critical thinking. Student can understand the teaching and retention will be enriched with meaningful learning. Concept maps can be used to help the students pre-identify key concepts and relationships.

Students need to be introduced to their format, their application, their construction and convinced that maps will help them see the nature and role of concepts and the relationships that exist. The aim of concept maps is to help students learn how to learn. Concept maps have been used successfully in teaching and planning instruction in English literature, mathematics, music, science, and engineering. They can become a useful strategy in instructing nursing students in the classroom and clinical settings.

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# Journal of Nursing and Care

**Review Article** | **Open Access**

# Psychosocial Factors Associated with Hospital-to-Home Transitions of Older People: A Review

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## Abstract

**Background:** Hospital-to-home transitions are periods of vulnerability for older people and their caregivers. Furthermore, few studies have looked thoroughly into the psychosocial factors influencing these transitions. Nurses must understand those factors well in order to provide effective care during transitions.

**Objectives:** To explore the psychosocial factors associated with the hospital-to-home transitions of older people, and to describe how they influence those transitions.

**Methods:** We made a literature search of seven electronic databases for qualitative articles published from 2000-2017 and focusing on the psychosocial factors related to the hospital-to-home transitions of older people discharged from acute care hospitals. Data were synthesized using a thematic synthesis.

**Results:** Eight articles met the review's inclusion/exclusion criteria. Six significant psychosocial factors emerged from the thematic synthesis: Self-management of activities of daily living, informal support, and formal support, participation in discharge planning, living alone, and social participation. The factors emerged mainly after discharge and could either facilitate transitions via positive influences (e.g., patients' feelings of safety, and independence in activities of daily living) or hinder them via negative influences (e.g., patient anxiety, poor adherence to medication, emotional burden on the caregiver, discontinuity in the activities of daily living and care, and risk of rehospitalization).

**Conclusion:** The influences of psychosocial factors can be associated with patient health and continuity in the activities of daily living and care. Integrating the evaluations of both patients and caregivers to identify needs or problems related to medical and psychosocial factors in transitional care seems essential for facilitating those transitions.

## Introduction

Older people with multiple chronic diseases and complex needs often require care in multiple settings. They are particularly vulnerable, as are their caregivers, to poorly executed transitions in care, for example, moves from hospitals to other care sites or returns home [1]. However, pressures to reduce hospital costs encourage shorter hospital stays and imply that transitions lead to a large part of convalescence taking place in patients' homes. Transitions home may be problematic in this context due to adverse events such as medication errors, a lack of communication between hospital and primary healthcare staff or rehospitalizations [2] involving even greater healthcare costs [3].

One systematic review has reported relevant insights about the factors linked to the problematic hospital-to-home transitions of older people (HHTOP), but it principally revealed the medical factors associated with adverse outcomes, including comorbidities, cognitive impairment, depression, previous hospitalization or polymedication [4]. Yet given that older people have multiple care needs and so many factors contribute to problematic hospital-to-home transitions, the multidisciplinary care teams involved in these transitions should develop interventions based not only on medical assessments but also on non-medical ones, such as psychosocial assessments [5]. Some studies have found that psychosocial factors (PSFs) such as less social support, living alone, unmet functional needs in terms of the activities of daily living (ADLs), and a lack of skills to self-manage care post-discharge may lead to hospital readmissions [6,7]. Altfeld et al. evaluated a telephone-based post-discharge care intervention and reported the following psychosocial problems among the patients in the intervention group: difficulties obtaining home-health services, caregiver burden, and medication management, with the latter factor being linked to readmissions. Their study revealed that for most patients, psychosocial issues only emerged after hospitalization, thus presenting them with an unexpected challenge on their return home and a further obstacle to adhering to their care plan [6]. This suggested that despite discharge planning (DP) interventions; patient needs related to PSFs-absent in hospital and unanticipated by patients and families—could suddenly appear at home. Of course, as reported by

Sheppard, non-medical factors may also emerge before discharge, including issues that contribute to delaying hospital discharge, such as the late booking of transport to take a patient home [8]. Therefore, given that effective DP requires the involvement of patients and their caregivers in order to develop appropriate strategies to meet every discharge need [9], that planning should address both medical factors and PSFs related to the HHTOP [6,10]. Despite this, most transitional care—the actions designed to ensure the coordination and continuity of care between different levels of healthcare and across healthcare settings [1] is aimed mainly at medical needs [10].

When transitions are being planned, one of the main nursing goals is facilitating them-preparing and helping patients to meet their upcoming challenges [11]. As PSFs may expose older patients to unexpected trials at home and the subsequent risk of rehospitalization, knowledge of the PSFs influencing HHTOP is essential. To recognise the PSFs related to transitional care, identify patients at risk of problematic transitions because of them, and develop pertinent interventions, nurses and other health professionals must have a good understanding of them. However, few studies have looked thoroughly into the PSFs associated with HHTOP [4,5,12]. To the best of our knowledge, no review of these PSFs has been conducted in the last 17 years. With regards to the above elements, a review of qualitative studies examining the influence of PSFs on HHTOP contributes to deepening the understanding of these factors. The present review's objectives were therefore to explore the PSFs associated with the hospital-to-home transitions of older people and to describe how these factors influence that transition.

## Literature Review

According to the definition of the PSFs of health proposed by Martikainen, Bartley, and Lahelma, psychosocial describes an intermediate level between individual and social structures [13]. These factors, such as social support, produce psychological changes within individuals, which can influence their health via psychobiological processes or modified behaviors [13]. For instance, less social support can contribute to a patient's non-adherence to the post-discharge care plan, as reported by Altfeld et al. [6]. However, in practice, psychosocial exposure does not necessarily affect health purely via psychosocial pathways. For example, social support may provide physical assistance as well as emotional support, but only the latter should qualify as a psychosocial pathway [13]. Thus, in the context of HHTOP, if social support (i.e., help from the social environment, such as from family caregivers or home-care professionals) includes physical aid with ADLs like bathing, a psychosocial process is also in operation when that support results in increased patient self-esteem and its benefits to health. Hence, the definition of PSFs used in this review describes an intermediate level that links patients' psychological structures with their social environments (hospital and home) and involves the psychological processes (cognitive, emotional, and behavioral) which could influence the transition.

## Methodology

### Inclusion and exclusion criteria

This review considered studies of people ≥ 65 years old and discharged from acute care hospitals, without distinction of sex, ethnic/linguistic origin, or geography. Studies were excluded if their target populations were: In terminal phases of illness; undergoing palliative care; discharged home from emergency departments-these patients' experiences of transition can be very different; or discharged home from a rehabilitation hospital or ward—these patients have already regained a certain amount of autonomy allowing them to cope better with ADLs. The review considered studies focused on the PSFs associated with HHTOP or studies of HHTOP with results providing insight into those PSFs. It was found that each person's experience of transition was continuously changing, and it could take six months, one, or even two years before a transition brought about major changes [14]. This is why studies documenting results between the time of DP and one year after discharge were included. Study outcomes included: PSFs associated with HHTOP according our definition of psychosocial, described above; the influences of PSFs involving positive perceptions or emotions (e.g., confidence) or negative ones (e.g., fear); and their influences associated with health (e.g., behaviors such as medication adherence, improving or worsening health, hospital or nursing home admission). The review considered qualitative studies including, but not limited to, designs such as phenomenology, grounded theory, or ethnography, and published in English, French, or Spanish from 2000–2017. Doctoral theses were included; conferences abstracts and literature reviews were excluded.

### Search strategy

With the assistance of a specialist health-sciences librarian, the first author (LCL) searched the PubMed, CINAHL, PsycInfo, Sociological Abstracts, BDSP, Cyberthèses, and Open Grey databases. A search via PubMed and CINAHL analyzed words in the titles, abstracts, and indexing terms used to describe articles. After this, a search of all the databases was made using keywords and the indexing terms. The citations obtained were imported into Endnote Bibliography Software. Initial keywords included: "aged", "frail elderly", "elderly", "aging", "older", "health transition", "patient discharge", "care transition", "hospital discharge", "psychosocial factor", "social support", "psychosocial deprivation", and "environment, social".

Two reviewers independently screened all titles and abstracts and then examined the full text of each potentially eligible article using the inclusion/exclusion criteria. They examined the references in the articles fulfilling all the criteria, generating further articles and providing eight articles in total for quality appraisal (Figure 1). Disagreements about study selection were resolved by discussion.

### Quality appraisal

The articles were assessed by two independent reviewers for methodological quality using the JBI-Qualitative Assessment and Review Instrument (JBI-QARI) for Interpretive/Critical Research (10 criteria). If there was no consensus, a third reviewer was consulted for a final decision. Criteria included agreement between:

(1) The philosophical perspective and the methodology.

(2) The methodology and the research question/objectives.

(3) The methodology and data collection methods.

(4) The methodology and the representation and data analysis.

(5) The methodology and the interpretation of results.

(6) Also addressed were: locating the researcher culturally or theoretically.

(7) The researcher's influence on the research, and vice-versa.

(8) The representation and voices of participants.

(9) Ethical approval by an appropriate body, and

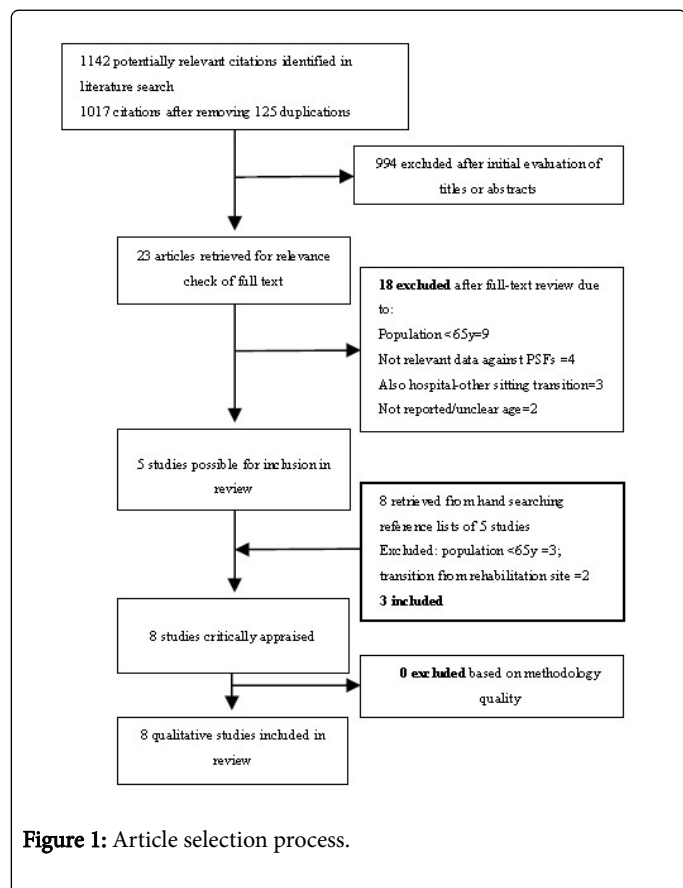(10) The relationship between the conclusions and the analysis, or data interpretation [15].



**Figure 1:** Article selection process.

### Data extraction and synthesis

Two reviewers independently extracted the data from the studies selected, including the country where the study was conducted, study aim, participants' characteristics, setting, method, and key outcome data concerning psychosocial aspects linked to HHTOP. The key data were extracted from the studies' results sections.

Key data were synthesized thematically using a three-step methodology (free coding, development of descriptive themes, and generation of analytical themes) for synthesizing qualitative research findings, as developed by Thomas and Harden [16].

(1) Two reviewers independently coded each line of text according to its meaning/content in relation to key data. Codes were checked by the third reviewer.

(2) The two reviewers looked for similarities and differences between the codes in order to group them into related themes describing different psychosocial aspects. These were checked and agreed on by the third reviewer.

(3) The three authors independently identified the influences of the psychosocial aspects within the descriptive themes. They then worked together to re-examine and compare the descriptive themes and the influences, finally generating six analytical themes by consensus discussion, each one being a PSF (see results). The analytical themes included descriptive themes and influences respectively.

## Results and Findings

A summary of the studies included is shown in Table 1. The study population included patients discharged from general hospitals, with differing medical conditions including heart problems [17-20], respiratory or abdominal problems [18], chronic diseases like diabetes [19,20], post-stroke [17,18], and surgical conditions requiring cataract [19] and orthopedic surgery [21,22]. Although the review was aimed at studies of people ≥ 65 years old, one study involving a patient aged 61 was selected due to its relevance [17]. No studies focusing exclusively on the PSFs linked to HHTOP were found, but they all reported results on data related to PSFs. All eight studies were judged to be of sufficient methodological quality for inclusion in the review. They all met at least seven of the ten JBI-QARI criteria [15].

| Authors/Years of publication/ Country | Aims | Participants | Methodology/ Methods | Psycho-social factors |
|---|---|---|---|---|
| Graham et al. (2009) USA [17] | To assess the needs of patients and caregivers during hospital-to-home transition. | 5 patients; mean age=75 (61-91); female=4159 caregivers: mean age=50, 48% family, 14% friends | Qualitative survey 20 focus groups with caregivers; 5 case study (2 interviews with elderly: 1 month and 4-6 weeks of discharge). | Self-management of activities of daily living. Informal, formal support. Participation in discharge planning, Living alone. |
| Grimmer et al. Australia (2004) [18] | To describe the experiences of elderly patients regarding their transition from hospital to independent community living. | 100 patients; mean age(male=77.4,female=74.1); female=65.7% | Qualitative survey, Semi-structured telephone interviews conducted monthly for 6 months post discharge. | Self-management of activities of daily living. Informal, formal support, Participation in discharge planning, Living alone, Social participation. |

| McKeown (2007) Ireland [19] | To explore the experiences of hospital to-home discharge among older people following assessment by the public health nurses. | 11 patients; mean age=81; male=6; living alone=6 | Phenomenological interviews 2 weeks post discharge, field notes. | Self-management of activities of daily living, Informal, formal support, Living alone, Social participation. |
| --- | --- | --- | --- | --- |
| Rush et al. (2016) Canada [20] | To understand risk related practices of older people returning home posthospitalization. | 8 patients; mean age=82; male=5 | Discourse approach interviews within three weeks of discharge. | Self-management of activities of daily living, Informal, formal support. |
| Perry et al. (2011) New Zealand [21] | To explore the perceptions of patients returning home following lower-limb orthopedic surgery. | 11 patients; age=66–88; female=8 | Phenomenological interviews 6 and 12 weeks post-discharge. | Self management of activities of daily living. Informal, formal support, Participation in discharge planning, Social participation. |
| Zidén et al. (2008) Sweden [22] | To explore the consequences of an acute hip fracture as experienced by home dwelling older people shortly post hospitalization. | 18 patients; median age=80; female=16;living alone=14. | Phenomenographic interviews 1 month and 1year post-discharge. | Self-management of activities of daily living. Informal, formal support, Participation in discharge planning, Social participation. |
| Le Clerc et al. (2002) [23] | To explore the challenges and needs of elderly, community dwelling women. | 14 patients; mean age=84.3. | Descriptive photo-novella or photovoice,in-depth interviews, 6–8 weeks post-discharge. | Self-management of activities of daily living. Informal, formal support, Participation in discharge planning, Social participation, Living alone, social participation. |

**Table 1:** Summary of included studies.

The PSFs and their influences that emerged from thematic synthesis are reported below:

### Self-management of activities of daily living

Older people had to manage both their basic ADLs or BADLs (bathing, dressing, toileting, transferring or walking, and eating), and their instrumental ADLs, or IADLs (telephoning, transportation, shopping, meal preparation, housework, taking medication, and financial management) [17-23]. Self-management of medical care was rarely reported, although certain problems were mentioned, such as insulin administration [19].

After discharge, in order to manage their ADLs, patients took initiatives to put in place coping strategies, thus displaying how capable and creative they could be in their determination to maintain or recover their independence in the ADLs [18-23]. Coping included:

(1) Changing the layout of their home's physical environment, e.g., moving furniture to facilitate movement.

(2) Self-care, such as taking analgesics to manage housework.

(3) Changing their manner of carrying out BADLs by adding rest periods, and

(4) Using formal and informal support. Managing ADLs also involved negative effects like anxiety and the fear of falling [18,22,23], as well as reduced safety due to risk-taking (e.g., falls) in performing those ADLs [18,20-22].

Informal support included assistance given to older people by caregivers (family, friends, neighbors) during hospital-to-home transitions [17-24]. This came in the form of help with ADLs, emotional support, medical care (e.g., wound treatment), and the maintenance of social relationships.

Before discharge, patients felt reassured by the presence of family members at DP meetings—somebody was there to plead their cause with health professionals [24]. Family gave people the confidence necessary to return home, especially with regard to the continuity of their rehabilitation [21]. After discharge, caregivers contributed to managing patients' ADLs [17-19,23]. Patients receiving informal support for administering medication showed better medication adherence [19]. One patient was happy with the help received from his children and wondered whether he could have made the transition successfully without them [18]. Patients living alone and with reduced mobility felt reassured by informal aid with their IADLs (e.g., grocery shopping) and emotional needs (e.g., calming fears of being home alone or falling, and anxiety due to difficulties with ADLs), things that were not taken into consideration by community health services [23]. However, there was a tension between their thankfulness to their caregivers and the worry of being a burden on them [21,23]. Moreover, caregivers facilitated patients' social links by doing activities with them (e.g., shopping, bingo) [19].

### Formal support

Formal support involved the assistance that older patients received from health professionals (nurses, physiotherapists, occupational therapists, or doctors) from hospitals or community health centres [17-24]. This included healthcare or help with ADLs, but only rarely emotional support. One study noted the key role of public health nurses in the provision and coordination of clinical nursing and other services for patients and in the identification of their needs after hospital discharge [19].

Before discharge, the presence of health professionals in DP meetings made patients feel safe [24]. After discharge, patients who had benefitted from limited occupational therapy services before discharge expressed their needs for bath/shower modifications for their safety [19]. Studies described patients' difficulties in getting access to formal support. Reasons included the poor information given to patients and caregivers by hospital professionals, ineffectively coordinated post-discharge care, and an absence of home-care services on weekends—all elements which created difficulties in care plan follow-up [17-19,21-23].

### Participation in discharge planning

The elements making up participation in DP were: health professionals' roles in encouraging patients (and caregivers) to participate in DP; patients' ability and desire to participate in decision-making about discharge plans; and effective communication, including information sharing between health professionals and patients and caregivers [17,18,21-24].

Before discharge, patients with difficulties understanding the information received from professionals during DP meetings felt that they were unable to influence their care [24]. After discharge, patients who had not participated adequately in DP had uncertainties about their care plans [22], lacked understanding about access to community health services [18], and were less able to manage ADLs, leading to anxiety due to difficulties with ADLs not having been anticipated at the hospital [23]. Others were reluctant to take analgesics [18] or were fearful of disrupting their recovery, subsequently becoming extremely careful and using trial and error to find the best way to perform activities [21]. It was noted that poor participation in DP created difficulties for caregivers trying to provide help [17,18] and increased the emotional burden of caregiving [17].

### Living alone

On their return home, older people living alone [17-19,23] used home healthcare services but mainly informal support to meet their needs for care or ADLs.

Before discharge, one widow, who had felt left out of DP, was worried about going home alone because she was not confident in her ability to manage IADLs [18]. After discharge, people living alone were at risk of rehospitalization and unmet hygiene needs when lacked informal support [17]. Women who had not been involved in DP experienced the fears and anxiety of living alone and falling [23] and had difficulties with ADLs [17-19,23]. Patients stated that being alone was worrisome, suggesting the importance of having someone to welcome them home [23]. Nevertheless, the typical independent mindset of patients living alone was highlighted by their habit of managing their own difficulties [19,23].

### Social participation

Older people's social participation was described as the accomplishment of social activities involving social interactions with others, e.g., shopping, going to church, or volunteering [18,19,21-23].

After discharge, people appreciated social participation activities [19,21], but others enjoying less social participation felt less social functioning and that they were prisoners in their own homes [18,22,23]. Women living alone who had difficulties buying groceries or travelling to medical appointments felt isolated from the outside world and depressed [23]. Patients no longer able to take part in social activities which had previously been important to them-visiting friends, participating in community groups-described a sense of no longer feeling useful. A lack of social participation significantly affected their feelings of well-being [18].

### Discussion

The review revealed six PSFs associated with HHTOP: self-management of ADLs, informal support, formal support, participation in DP, living alone, and social participation. Those factors emerged before but mainly after discharge, which corroborated other studies [6]. For older people, hospital-to-home transitions involved changes in their physical condition, which necessitated re-adaptation to their home lives. In this context, PSFs facilitated or hindered their transitions via positive or negative influences, respectively (Table 2). PSFs were often interrelated, e.g., living alone, less participation in DP, and less informal/formal support contributed to poor self-management of ADLs. Moreover, certain physical factors may influence the impact some PSFs in patients. For instance, pain, fatigue, or decreased mobility linked to their medical/surgical conditions hindered their capacities to manage ADLs [17-23] and social participation [18,23] or increased their needs for informal/formal support [17-24].

| Psychosocial factors | Positive influences | Negative influences |
|---|---|---|
| Self-management of activities of daily living. | Management of BADLs/IADLs difficulties. Coping strategies. Independence in BADLs/IADLs. | Safety risks (e.g., falls), fatigue. Poor self-management of BADLs/IADLs: confusion, anxiety; risk of less social participation. |
| Informal support | Patients' feelings of confidence and safety about the return home; confidence after discharge. Reduction of patient anxiety. Continuity of BADLs/IADLs/care. Maintained social participation. | Patients' feelings of being a burden on their caregivers. |
| Formal support | Patients' feelings of safety. Continuity of BADLs/IADLs/care. | Poor formal support at hospital: less safety in self-care and unexpected care needs post-discharge. Poor formal support post-discharge: ineffective follow-up care plan. |
| Participation in discharge planning | Patients' feelings of being a part of discharge planning. | Lack of participation: worries about managing IADLs before discharge; difficulties in managing BADLs/IADLs, uncertainty concerning care plan and poor adherence to medication post discharge. Poor involvement of caregiver: difficulties in providing care, emotional burden. |

| Living alone | Self-management of BADLs/IADLs difficulties. | Worries about going home alone; anxiety, fears and loneliness after Discharge. Risk for rehospitalization and unmet hygiene care needs |
|---|---|---|
| Social participation | Patients' feelings of satisfaction | Less social participation: feelings of uselessness, isolation, depression, reduced feelings of well-being and belonging. |
| BADLs: Basic Activities of Daily Living; IADLs: Instrumental Activities of Daily Living | | |

**Table 2:** Summary of psychosocial factors and influences on HHTOP.

Older patients had difficulties with ADLs (mostly bathing) and IADLs (mainly housework, shopping, preparing meals, or using transportation) in the early post-discharge period [17-19,22,23]. Other studies also found these problems significant [25,26]. Bathing is a physical activity that requires significant postural control, and older patients are more fearful of falling while bathing than with any other ADLs [25]. Problems managing IADLs have been associated with living alone, a lack of informal help or absent community health services, and poor participation by patients and caregivers in DP, as reported in this review [18,19,23]. These problems with IADLs may lead to negative consequences on their health, e.g., difficulties in managing grocery shopping or cooking can lead to nutritional problems associated with increased risks of rehospitalization [27].

This review showed that difficulties with ADLs in the post-discharge home environment determined patients' behaviors to do with their autonomy over these tasks and their skills to put in place adaptive strategies to deal with them, thus contributing to their functional independence and continuity with ADLs. Their great efforts to manage ADLs [18-23] might, however, suggest the presence of stress linked to the need to accomplish them. It was reported that functional difficulties and needs for aid in BADLs/IADLs might represent stressful situations for older people [28]. In this context, patients principally used aid from caregivers, mainly family members, to manage ADLs [17-23]. Patients described feelings of happiness and safety linked to this help [18,23], suggesting that this assistance improves their well-being, is beneficial to their health, and contributes to a reduction in the psychological pressures on their ADLs. Indeed, Ekstrom, Dahlin Ivanoff and Elmstahl noted that informal support fulfilled a stress-reducing function by providing emotional and physical aid in ADLs [29]. Huang and Acton reported that both emotional support and help in ADLs from the family favored the maintenance of independence in older people after hip fractures [30]. Informal support thus contributes to the biopsychosocial well-being of older patients, and to successful transitions. Likewise, it decreases the risks of hospital readmission [9]. Yet findings also described how patients' feelings of well-being, thanks to informal aid, might be tempered by their concerns over being a burden on the caregiver [21,23]. This concern shows the need for some sort of formal, professional post-discharge support [31]. Additionally, findings reported that caregivers felt an emotional burden if they had participated poorly in DP, which can be problematic for the provision of care [17]. Caregiver burden was associated with anxiety and frustration and often affected their relationships with the patient and quality of care [9]. These results indicated the pertinence of transitional care that includes informal and formal support, according to the patient's and caregiver's needs. This could reduce the risks of emotional tension and overburdening caregivers, and thus avoid negative outcomes for the care provided and for patients' and caregivers' health. A significant association was found between unmet needs with regards to IADLs and psychological distress in older women [32].

It is necessary to consider PSFs and medical issues in order to develop appropriate discharge plans: effective DP contributes to reduced rehospitalization [9]. However, patients and caregivers in the present review experienced inadequate participation in DP [17,18,20-24]. Other obstacles to DP reported in the literature included health professionals' poor knowledge of the discharge process, the lack of time available to discharge planners due to high patient throughput, pressure to discharge patients quickly, and poor communication between hospital and community health professionals [33]. Furthermore, many patients in this review lacked or had poor support from health professionals, leading to gaps in the continuity and coordination of post-discharge care. However, findings suggested that this support also contributed to adequate transitions, e.g., when patients required home healthcare or lacked help from caregivers [18,19,23]. Indeed, it is known that older people have high usage rates for home healthcare services: this formal support improves their functional independence and well-being and helps patients remain in their own homes, preventing rehospitalizations or readmissions to long-term care institutions [34]. Yet the heavy workloads facing homecare services result in the inadequate provision of care, which has implications for patients during their transitions. Patients in this review were dissatisfied with the shortness of the homecare allocated them and the lack of any service provision at weekends [19].

Moreover, in agreement with the review's findings, Kharicha et al. reported that older people living alone had a greater risk of difficulties in ADLs and of social isolation than those living with someone [35]. Findings suggested that the difficulties involved in carrying out IADLs reduce the social participation of people living alone [23]. Indeed, functioning in daily life was described as one of the dimensions of the concept of social participation [36]. Another study noted that informal support helped patients to join in participative social activities [19]. Similarly, a recent study found that informal support increased social participation by providing transport to an activity or by joining in with older people in performing that activity [29]. By creating better conditions for social participation, informal support also contributes to improving people's health. Social participation is associated with slower cognitive and functional decline, reduced drug consumption and depressive symptoms, improved perceived health, and increased feelings of well-being [36].

Hence, ideally, an appropriate HHTOP requires comprehensive DP involving the participation of patients and caregivers, and follow-up to link hospital and post-hospital care. Findings suggested that the support of public health nurses can ease transitions by evaluating patients' needs and providing and coordinating community services for them [19]. A recent study showed that a comprehensive assessment of older patients before hospital discharge, together with a post-discharge evaluation and follow-up by specialized nurses in patient's homes, was associated with lower rehospitalization rate [37]. Earlier studies also emphasized fewer rehospitalizations due to advanced

practice nurses interventions, involving older patients, caregivers, and health professionals in the implementation of discharge plans, home visits, and telephone follow-up [1]. Nurses play central roles in coordinating DP and ensuring successful care transitions [1].

### Implications for practice

To design personalized care transition plans, it is vital that nurses and others (e.g., physicians, social workers) involved in DP perform comprehensive patient and caregiver assessments in order to identify any possible problems associated with medical and psychosocial factors relating to those transitions. Nurses can help older patients discharged home and living alone to identify and anticipate their needs and resources relating to psychosocial issues, such as the management of ADLs (e.g., cooking, transportation to the doctor), social participation, access to community health services, and the availability and aid of caregivers. One study found that having someone at home upon return from hospital and having adequate formal homecare services was significantly associated with older patients reporting that they were managing well after discharge [38]. A discharge evaluation should also consider patients' and caregivers' values and their wishes concerning participation in DP. Some patients prefer that health professionals make care decisions on their behalves [21]. Some potential caregivers are either unavailable or do not wish to take part in caregiving. Although providing support may prove fulfilling for some caregivers, it can also be a physical, emotional, and financial burden on them. The assistance and care required by elderly relatives after discharge may well be far more significant than before their hospitalization, and their needs and the caregiver's willingness to resume that role can change [1].

A dual patient–caregiver assessment in the early post-discharge period is also required. For instance, a public health nurse could assess patients' readaptation to post-discharge life and needs, particularly concerning their needs related to the PSFs identified in their situations and integrating the positive and negative influences of these factors. Collaborating with other health professionals would enable broader post-discharge adjustments to care plans, such as the type of support requested from community health services, and could take into account the physical and emotional needs of patients and caregivers. Interventions should aim to maintain or encourage patients' social participation, according to their resources and desires. As informal support facilitates social participation, health professionals should provide caregivers with information about this and facilitate their help (e.g., with formal support).

The elements described above suggest the value of using a transitional care model that would integrate medical and psychosocial issues. Naylor's Transitional Care Model may well be pertinent in this regard; it is centered on the needs of older patients and caregivers, and it comprises interventions carried out by advanced practice nurses who can ensure follow-up at home [39].

### Limitations

This review only encompassed a few articles (8 studies), and the list PSFs identified was not exhaustive. Furthermore, it only included qualitative studies, preventing the identification of findings on these factors from quantitative studies. The findings provided little evidence of the causal mechanisms which might explain PSFs' effects on health. All the studies included were conducted in English-speaking or Scandinavian countries, so findings should not be generalized to other contexts; neither should they be generalized to explain all the contexts surrounding HHTOP—our studies involved discharge from acute general hospitals, not psychiatric hospitals, for instance. Moreover, potentially useful studies may have been missed, and the review's authors were registered nurses, whose skills and subjectivity could have influenced study selection.

### Conclusion

This review has contributed to a better understanding of the psychosocial factors (PSFs) related to the hospital-to-home transitions of older people. PSFs facilitate or hinder transitions *via* their respective positive or negative influences, which may be associated with people's health. For instance, informal and formal support generated feelings of safety in patients and helped them in the activities of daily living (ADLs) and care, which may have contributed to their overall biopsychosocial well-being. On the other hand, living alone was associated with the risk of rehospitalization; self-management of ADLs, poor participation in discharge planning (DP), and living alone were linked to patient anxiety; less social participation was linked to feelings of depression. PSFs also influenced ADLs and the continuity of post-discharge care. Informal support facilitated patients' adherence to medication, whereas poor participation in DP contributed to difficulties in managing ADLs, accessing community health services, and following care plans (by patients and caregivers). To facilitate transitions, it thus seems essential that nurses and the other health professionals involved in transitional care integrate patient and caregiver evaluations into DP to identify and anticipate patients' needs related to medical and psychosocial factors. Further research into these PSFs will be needed to deepen our understanding of them.

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Research Article

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# Patient's Perception towards Quality of Nursing Care in Inpatient Department at Public Hospitals of Benishangul Gumuz Regional State, North West Ethiopia

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## Abstract

**Background:** Quality nursing care service delivery is critical undertaking for optimal patient outcomes. Patient's perception of quality nursing care is the patient's feeling or view of the nursing care they received from nursing staff during hospital stay. Using patient's perception as proxy in measuring quality of nursing care is highly recommended.

**Objective:** The aim of this study is to assess patients' perception towards the quality of nursing care in inpatient department at public hospitals of Benishangul Gumuz regional state.

**Methods:** Institution based cross-sectional study design was employed from March 15 to April 30/2018. Stratified random sampling technique was used to select 421 eligible study participants. Interviewer administered structured questionnaire was employed to collect data. Data was entered to epidata version 3.1 and exported to SPSS version 23. Descriptive statistics was computed and binary logistic regression analysis was used to identify candidate variable. Then, variables found to have value of less than 0.25 was entered into multivariable logistic regression analysis. Finally, the p-values of <0.05 was considered statistically significant. Graph, table and chart were used for presenting results.

**Results:** The overall good perception was found to be 49.3%. There was a statistically significant association between patients' level of education, length of hospital stay, companion possession status and type of room admission (p<0.05). But, there was no statistically significant association between gender, age and previous hospitalization experiences with overall patient perception.

**Conclusion and Recommendations:** Authors conclude that the patients enrolled in the study perceived nursing care services in negative way, so their perception status with the care they received was found to be at a lower level. This requires imperative attention by responsible bodies to enhance patient perception. Further study is needed to understand the overall patients feeling using qualitative study and also the care providers' perceptions should be examined.

## Introduction

There is growing evidence that perceived quality is the single most important variable influencing consumers to purchase products or services. Quality Nursing Care (QNC) is extremely important for health care organizations [1]. QNC is defined as a process that sought to attain the highest degree of excellence in the delivery of patient care [2]. In this study, patient's perception of quality nursing care is defined as the patient's feeling or view of the nursing care they received from nursing staff during hospital stay and is acknowledged as an outcome indicator of the quality of nursing care [3]. Quality nursing care remains an important role for patient because nurses are involved in almost every aspect of client's care in hospital. Nurses also interact with patients more often than any other health care personnel in a hospital [4].

Patient perception is an important indicator which gives an idea about the quality of nursing care services. It also provides feedback to determine the quality and evaluation of nursing care [5]. Therefore, patients should be allowed to define their own priorities and evaluate their care accordingly, rather than having those criteria selected by professionals [6].

Health care professionals and patients view quality nursing care from different perspectives. Health care professionals view competent nursing care as quality nursing care [7]. Patients describe quality nursing care in terms of interpersonal care, efficiency; competency, comfort, personalized information, physical environment, and general instructions [8].

Mostly, quality of nursing care has been measured against expectations of health professionals and standards rather than being grounded in the perspectives of patients. Using patient's perception as proxy in measuring quality of nursing care is highly recommended, though, ignored in most research and organizational endeavour of low income countries thus far [9].

To ensure service improvement initiatives at appropriative levels in hospital is a prerequisite to understand factors which influence patients' perception about the received care. The measurement of patients' perception with quality nursing care is important to determine and meet patients' need in terms of nursing care and to evaluate quality of nursing care provided [10].

Sustaining the quality of hospital care and how to improve it has emerged to be a global challenge. This has resulted in various measures being developed to measure quality and no single method can be said to be the best. There is need to find out what constitutes quality care especially from the patient's perspective, together with views from healthcare managers and other groups [11].

The experience possessed by patients can offer alternatives of improving nursing care quality service that may not be observed from other perspectives, for instance, the way of treatment, process or interaction. Despite having various methods of quality measurement, the challenges always persist and there is a belief that measuring and acting on issues of quality raised by patients can provide solution to the problems [12].

Although the significance of measuring patient satisfaction with nursing care cannot be emphasized enough, currently the concern of patients' satisfaction with nursing care has attracted the attention of researchers across the globe. This is because of knowledge gained from patient satisfaction surveys can set a direction for quality improvement [13].

Currently the nursing profession has often use patient's outcome as a measure to assess the health care delivery system. It assists in the evaluation of nursing care practice quality and it also helps in bringing better improvements in the established nursing service [14]. Nurses are in a unique position to promote and influence effective relationships with the client. Because the nurses spent much time with the patients than any other health care workers [15].

The study showed that the most important factor affecting patient's perception in terms of hospital care is nursing service. Patient satisfaction study revealed that nursing care is the major determinant of the patient's satisfaction. Care that has been assessed to be high quality based on the economic, clinical or other providers-related criteria are not ideal, if the patient feels dissatisfied [16]. Patient satisfaction research result in Iran showed that dissatisfaction of nursing care service leads the patient to low utilization of nursing care service and developing negative attitude about the health care system. As a result, dissatisfied patients will not come back to hospital. Therefore, patients' satisfactions are not simply measure of quality; it is the goal of health delivery [17].

A study on patients' perception of quality nursing care stated that nurses' affective activities are more important for the quality nursing care than their technical skill. From this study, patients placed most emphasis on the nursing care that recognized them as a unique individual with their need to share feelings, to be accepted as a family member and to have someone listen to them [18].

Despite the fact that a study conducted in Jordan hospitals revealed that the perceived quality of nursing care is relatively low, patients were found less satisfied with both coordination and interpersonal aspect of the care provided. In this study, the author concluded that Jordanian healthcare organizations have performed below the average in providing quality care which considered significant to hospital administrators and directors of nursing [19].

A study undergone in Nigeria found that dignity was not completely maintained according to the standards expected by the patients. Nurses' attitude towards patients had great influence on patients' perception of nursing care. Quality of care is not only dependent on the care received, but also on the way the care delivered [20]. Patients' perception to health care system seems to have been largely ignored by health care administrators in developing countries [21].

The Ethiopian Federal Ministry of Health (FMOH) is struggling to provide quality health care service at every health institution through different strategies [22]. Although the needs of the clients are dynamic and are constantly influenced by demographical, social, environmental, cultural, economic and technological factors, patient satisfaction is not sufficient enough. Therefore, the health care system needs constantly determining the needs of the clients through patients' satisfaction surveys to go through a continuous change that is in accordance with the priority needs of the client and ensure the quality of nursing care services [23].

Research done in Axum has shown that the overall rating of nursing care quality was 65%. The aspect of care which scored least were patient observation, pressure ulcer prevention and amount of information nurses give about their condition [24]. So, to improve the health care system the use of patients' perception of care is very important and also nurses should have a clear understanding of patient's need in order to plan individualized nursing care.

In addition, a study conducted in Mekelle Ethiopia showed that the overall patients' perception was found to be 49.7%. In this study, regarding the nurses' characteristics, the nursing care related activities, and the information providing to the patient perceived was found to be 45.5%, 40.4%, and 38.8% as poor respectively. The result indicated the need for professional accountability and responsibility to provide optimal standard nursing care [25].

The study undergone in Dessie referral hospital on adult patients' satisfaction revealed that the overall patients' satisfaction was 52.5%. This study indicated the rate of patient satisfaction with the nursing care was low. The study further revealed that the type and amount of information nurses gave to the patient was the least scores [15].

In general, a very important aspect on which the patient satisfaction depends is on the nursing care, because nurses are involved almost in every aspect of client's care. A nurse who was perceived quality nursing care service had showed kindness, a good attitude and professional manner, thrust and honesty as well as clinical competence. To understand the patient satisfaction, Patient's perception towards nursing care must first be understood. Therefore, the purpose of this study was to assess patients' perception regarding the quality of nursing care and its contributing factors (Figure 1).

## Conceptual Framework

Many studies in different parts of the world reviewed that patients' perception of quality nursing care is affected by different factors. For this study according to the literature review the main factors identified

are socio-demographic status of the patient, patient related factors, hospital related factors.



**Figure 1:** Conceptual frame work adapted from Gupta BS on patient's perception towards quality nursing care [7].
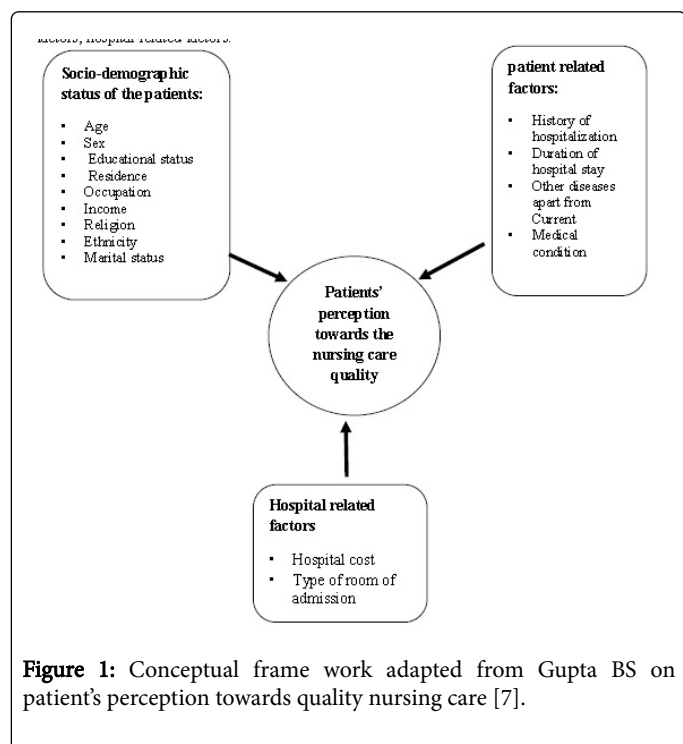
## Methods and Materials

### Study area and period

Institution based cross-sectional study design was conducted in public hospitals of Benishangul Gumuz Regional State, North West Ethiopia, from March 15/2018 to April 30/2018. Benishangul Gumuz Regional State is one of the nine regional states of the federal democratic republic of Ethiopia and 675 km far from Addis Ababa to the West. The region is administratively composed of 3 Zones and 20 Woredas. The population size of the region was estimated to be 1,000,000 and the proportion of male and female was 50.7% and 49.3% respectively. Two general hospitals, 33 health centres and 378 health posts make the regional health care service coverage 87%. Pawe general hospital was one of the public hospitals in the region. The hospital provides over 15 different services with 150 beds and 310 employees. The nurses give care for around 340 inpatients per month within four wards. Assosa general hospital was the second public hospital in the region. The hospital provides over 15 different services with 108 beds and 298 employees. The nurses give care for around 300 inpatients per month within four wards. All adult patients who were admitted to inpatient wards at public hospitals of Benishangul Gumuze Regional State were the source of population and all adult patients who were admitted to the Medical, Surgical, Gynaecology and Obstetrics wards in Assosa and Pawe general hospitals and eligible were the study population.

### Inclusion and exclusion criteria

Patients whose age ≥ 18 years and hospitalized patients who stayed in the ward at least for 3 days were included whereas patients who cannot respond/disoriented/altered mental status were excluded from the study.

### Sample size and sampling procedure

The sample size for this particular study was calculated using a single population proportion formula considering the following assumptions:

The sample size was determined with 5% absolute precision and 95% confidence interval. Proportion of patients' perception with the nursing care (p=50.3%) [25] was considered. Based on this assumption, the actual sample size for the study was as follows.

$n = (Z\alpha/2)^2 P (1-P) d^2$

Where n=Sample size

Z=Value corresponding to a 95% level of significance=1.96

p=(Proportion of patients' perception with the nursing care 50.3%)

q=(1-p) = (1-0.5)=0.5

d=Margin of error, assumed to be 5%

Therefore, based on using the above single population proportion formula the sample size calculated as:

$n = (1.96)^2 0.53 (1-0.53) (0.05)^2$

n=383

For possible non-response rate, the final sample size was increased by 10% to 421 admitted patients. Stratified random sampling technique was applied and the total sample size (n=421) was allocated proportionally for both hospitals based on the total number of patient flow in the hospitals. First, the number of patients to be taken from each ward was determined based on the number of patient flow they had. Then, through using a systematic random sampling technique, every $K^{th}$ patient were included where k=2 for both Hospitals that obtained total patient divided by the sample allocated for each hospital. The first patients were selected by lottery method from their order of registration and then every other patient who had received care was selected and those on the list will approached consecutively.

Data was collected through face to face interview using modified patients' perception of quality nursing Care which developed by Senarath and colleagues in Sri Lanka in 2011 by contextualizing local context and translating to local language. Patients' perception of nursing care was measured using the Likert scale of 5 points (1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree) and Participants were asked to rate their perception with various aspects of nursing care by selecting only one number that best describes. Four diploma nurses for data collection and two BSC nurses as supervisor were recruited.

### Operational definition and definition of terms

- **Patient's perception of quality nursing care**: It is defined as patient's feeling or view about the nursing care they received in their hospital stay in terms of interpersonal care, comfort, efficiency, personalized information, physical environment, and competency of nurses.

- **Other disease**: Patients who reported having other disease apart from the main admission case.

- **Acute condition**: Patients who reported that experiencing of the admission case for less than 30 days.
- **Chronic condition**: Patients who reported that experiencing of the admission case for 30 days and above.
- **Good perception**: If the summed score of response of 26 perception questions is more than the median score, the patient was categorized as having good perception.
- **Poor perception**: If the summed score of response of 26 perception questions less than or equal to the median score, the patient was categorized as having poor perception.

## Data quality assurance and analysis

Pre-test was conducted on Chgni general hospital on 5% sample size 2 weeks before actual data collection after which correction of concepts and statements were made. The reliability analysis was performed on the final instrument to assess the internal consistency as measured by alpha Coefficient which was 0.86 for the total scale. Training was provided for data collectors and supervisors on data collection procedures to ensure the quality of the field operation. The questionnaire was prepared in English language and translated to local language; Amharic by experts. Since the data collectors were not from the hospital workers, the patient can talk freely what he/she felt heart fully about the quality of care without fearing for his/her future cares which increases the quality of data. The researchers and supervisors were closely supervising the data collection process and every day the researcher and supervisors contact with the data collectors to solve problems and correct errors as early as possible. The collected data was checked for completeness, consistency and responses in each question was coded for simplicity of data entry. Then, data was entered to EPI-data version 3.1 and exported to Statistical Package for Social Sciences (SPSS) version 23. Descriptive statistical analyses were computed to see the frequency distribution and binary logistic regression was used to identify candidate variable for multiple logistic regression. The variables with p-value of <0.25 were taken to multivariable logistic regression analysis to determine the significant association. Model fitness was checked by Hosmer and Lemshow test. A median score was used to summarize the patients' perception as good and poor. Those who scored above the median score was taken as good and below or equal to the median score as perceived poor. Finally, the p-value<0.05 were considered statistically significant. Graph, table and chart were used for presenting results in order to give a clear picture of magnitude and relationships of various study variables.

## Ethical considerations

Prior to data collection, ethical clearance was obtained from Institutional review board of Jimma University, Institute of health. An official support letter was also obtained from Benishangul Gumuze Regional health bureau. Permission was obtained from ward in-charges to access the participants and informed consent was obtained from the study participant to confirm willingness for participation after explaining the objective of the study. The participants had also the right to refuse or terminate their participation at any point of time. The information provided by each respondent was kept confidential through anonymous recording and coding of questionnaire.

## Results

### Socio-demographic characteristics

Out of 421 desired participants, 418 included in the study which yields 99.3% response rate. Two hundred forty-seven (59.1%) were females. More than half, 236 (56.5%) of study participants were in age range of 18-30 years with mean age of 34.88 ± (SD=13.29) years. Nearly half of the respondents (46.9%) were orthodox in religion and Amhara and Gumuz Ethnic group accounts 133 (31.8)%, 81 (19.4%) respectively. About one third (34.7%) of the participants were unable to read and write whereas 109 (26.1%) of the participants were farmer and 219 (52.4%) were living in rural areas. On the other hand, 216 (51.7%) of them earn 500-1000 ETB a month with their mean monthly income being 880.4 Ethiopian Birr (SD ± 751.8) (Table 1, Figures 2 and 3).

| Variables | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Sex | Male | 171 | 40.9 |
| | Female | 247 | 59.1 |
| Age in year | 18-30 | 236 | 56.5 |
| | 31-40 | 99 | 23.7 |
| | 41-50 | 65 | 15.6 |
| | 51 and above | 18 | 4.3 |
| Marital status | Married | 304 | 72.7 |
| | Single | 92 | 22 |
| | Divorced | 9 | 2.2 |
| | Widowed | 13 | 3.1 |
| Religion | Orthodox | 196 | 46.9 |
| | Muslim | 163 | 39 |

| | | | |
|---|---|---|---|
| | Catholic | 21 | 5 |
| | Protestant | 38 | 9.1 |
| Ethnicity | Amhara | 133 | 31.8 |
| | Oromo | 66 | 15.8 |
| | Shinasha | 46 | 11 |
| | Berta | 64 | 15.3 |
| | Gumuz | 81 | 19.4 |
| | Agew | 10 | 2.4 |
| | Others | 18 | 4.3 |
| Educational status | unable to read and write | 145 | 34.7 |
| | Able to read and write | 51 | 12.2 |
| | Primary school | 101 | 24.2 |
| | Secondary School | 77 | 18.4 |
| | College and above | 44 | 10.5 |
| Occupation | Government employee | 47 | 11.2 |
| | Merchant | 40 | 9.6 |
| | Farmer | 109 | 26.1 |
| | House wife | 68 | 16.3 |
| | Private employee | 131 | 31.3 |
| | Other | 23 | 5.5 |
| Place of residence | Rural | 219 | 52.4 |
| | Urban | 199 | 47.6 |
| Income classification | <500 | 106 | 25.4 |
| | 500-1000 | 216 | 51.7 |
| | 1001-1500 | 50 | 12 |
| | 1501-2000 | 15 | 3.6 |
| | >2000 | 31 | 7.4 |

**Table 1:** Socio-demographic characteristics of patients' in public hospitals of Benishangul Gumuze (n=418), Note: Others (Ethnicity): Kenbata, Tigre, Mao, Komo, Others (Occupation): student, prisoners.

### Patient and admission related characteristics

Among participants, 386 (92.3%) were admitted in the common room. Concerning service, 339 (81.1%) of participants had paid for the service they received. A considerable number of patients, 340 (81.3%) were admitted for acute illness. Moreover, 341 (81.6%) of patient did not have other diseases apart from current health problem. Majority of respondents, 389 (93.1%) had family support/Companion Possession in their hospital stay and concerning the hospital cost, more than half (52.3%) of respondents perceived it as medium followed by 158 (46.5%) of respondents perceived as high cost. Three hundred seventy-one (88.8%) of the participants stayed in the study hospitals for ≤ 7

nights with the mean length of stays (nights) of 5.2 (SD ± 2.5) (Table 2).

### Patients' perception about the quality of nursing care

The results of this study revealed that, 206 (49.3%) of the study participants had good perception about the overall nursing care quality they received. Nearly half of respondents, 202 (48.3%) had good perception regarding on interpersonal nursing care related dimension. Among this, nurses friendly communicate with the patients 297 (71.1%), nurses maintain the individual respect 265 (63.4%), nurses show willingness when asked for help 260 (60.2%) were the three aspects of nursing care services which had good perception with the

highest proportion of the study participants. On the contrary, nurses did most of the things by asking them, nurses involve the patients and their family in patient care and nurses immediately took care of their requests were 208 (49.8%), 134 (32.1%) and 100 (23.9%) respectively.

On the second dimension of nursing care, 164 (39.2%), 186 (44.5%), 306 (73.2%) and 168 (40.2%) of respondents had good perception on nurses gave treatment/medication without any delay, nurses maintained records efficiently, enough number of nurses were available for their care and nurses maintain good coordination with other staff respectively.

Regarding on patient comfort, 266 (63.6%), 75 (17.9%) and 75 (17.9%) of them had good perception on efforts taken for ensuring privacy during examination, peaceful environment in the ward and cleanliness of the bed respectively. Related to the information given by the nurse out of the total participants, 107 (25.6%), 111 (26.6%), and 162 (38.8%) of them had good perception with the amount of information provided on facilities available when first came to the ward, the amount of information provided regarding the illness and the amount of information provided regarding on investigations respectively.
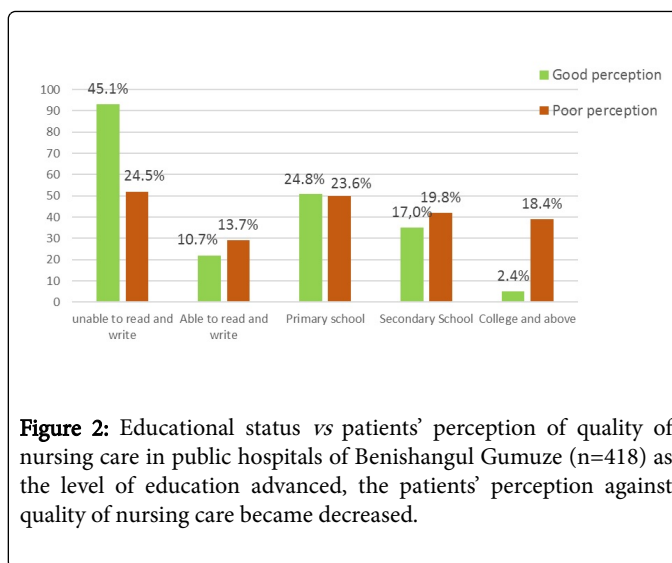


**Figure 2:** Educational status *vs* patients' perception of quality of nursing care in public hospitals of Benishangul Gumuze (n=418) as the level of education advanced, the patients' perception against quality of nursing care became decreased.

| Variables | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Admission ward | Medical | 153 | 36.6 |
| | Surgical | 128 | 30.6 |
| | Gyn/obs | 137 | 32.8 |
| Number of days stayed in hospital | ≤ 7 | 371 | 88.8 |
| | ≥ 8 | 47 | 11.2 |
| Service type | Free | 79 | 18.9 |
| | Payment | 339 | 81.1 |
| History of previous admission | Yes | 154 | 36.8 |
| | No | 264 | 63.2 |
| Other disease | Yes | 77 | 18.4 |
| | No | 341 | 81.6 |
| Medical condition | Acute illness | 340 | 81.3 |
| | Chronic illness | 78 | 18.7 |
| Family support | Yes | 389 | 93.0 |
| | No | 29 | 7.0 |
| Type of room of admission | Common room | 386 | 92.3 |
| | Private room | 16 | 7.7 |
| Feeling about hospital cost | High | 158 | 46.5 |
| | Medium | 178 | 52.4 |
| | Low | 2 | 0.6 |
| | Uncertain | 2 | 0.6 |

**Table 2:** Patient and admission-related characteristics of the participants in public hospitals of Benishangul Gumuze (n=418).

Concerning on the caring environment, 308 (73.7%), 329 (78.8), 313 (74.9%), and 239 (57.2%) of respondents had good perception on ventilation of the ward, lighting condition of the ward, safety and security in the ward and information displayed at the entrance respectively. On the last dimension, 247 (59.1%) and 273 (65.3%) of them had good perception on nurses' competency and enough knowledgeable to answer their questions.

From the six dimensions, the overall patients' perception was mostly related with interpersonal dimension where the correlation coefficient value r=0.751 and it was lesser related with comfort related dimension of nursing care where the correlation coefficient value r=0.234. Combined score of patient's perception in each of the six dimensions is summarized in Tables 3 and 4.

| S. No | Aspect | Good perception | Poor perception | Total |
|---|---|---|---|---|
| | | No (%) | No (%) | % |
| 1 | Interpersonal care | 202 (48.3) | 216 (51.7) | 100 |
| 2 | Efficiency | 161 (38.5) | 257 (61.5) | 100 |
| 3 | Comfort | 206 (49.3) | 212 (50.7) | 100 |
| 4 | Information | 105 (25.1) | 313 (74.9) | 100 |
| 5 | Environment | 172 (41.1) | 246 (58.9) | 100 |
| 6 | Competency | 180 (43.1) | 238 (56.9) | 100 |
| Overall | | 206 (49.3) | 212 (50.7) | 100 |

**Table 3:** Patients' perception on nursing care at public hospitals of Benishangul Gumuze (n=418).
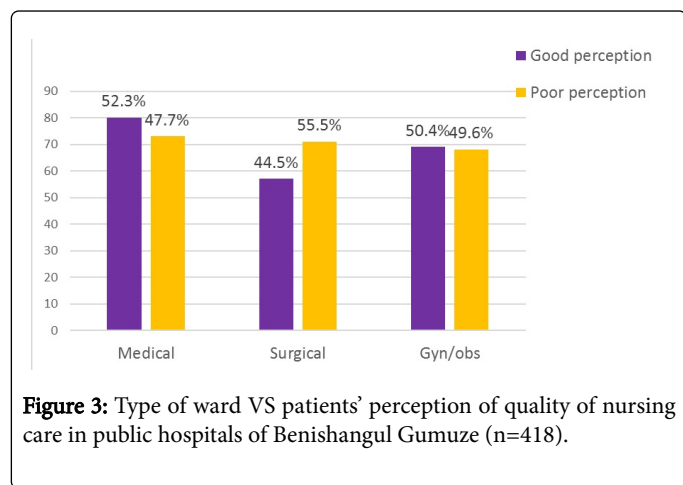


**Figure 3:** Type of ward VS patients' perception of quality of nursing care in public hospitals of Benishangul Gumuze (n=418).

### Logistic regression analysis on patients' perception of quality of nursing care

The results from binary logistic analyses showed that there were relationship between sex, educational status, history of previous admission, income, number of days (nights) stayed in hospital, family support and type of admission room with patients' overall perception with nursing care quality. In multiple logistic regression analysis, educational status, length of hospital stay, family support/companion possession, type of admission room and hospital setting were found to be statistically significant predictors of patients' perception.

Accordingly, patients who were unable to read and write were 21 times more likely to have good perception towards nursing care quality than those who had College Diploma and above [AOR=21.026 and 95% CI (7.433, 59.479)]. Regarding number of days stayed in hospital, those patients who stayed for ≤ 7 nights were 2.39 times more likely to

have good perception compared to those stayed for ≥ 8 nights [AOR=2.386 and 95% CI (1.209, 4.709)].

In addition, the study result showed that patients who had family support were 3.5 times more likely to have good perception towards nursing care quality compared to those who had no support/companion possession [AOR=3.531 and 95% CI (1.475, 8.453)]. Patients who were admitted to private room were 3.68 times more likely to have good perception towards nursing care quality compared to those admitted in common room [(AOR=3.676 and 95% CI (1.534, 8.811)]. This study also showed that patients admitted in Pawe Hospital were 1.7 time more likely to have good perception on nursing care quality than those who were admitted in Assosa Hospital [AOR=1.724 and 95% CI (1.127, 2.636)].

### Discussion

This study revealed that the overall proportion of patients who had good perception on the quality of nursing care was 49.3%. This finding was consistent with the study done in north Ethiopia 50.3% [25]. But this percentage was lower compared to other studies conducted in Sri Lankan hospital 70%, Nepal 63.6% and Kenya 67.8% [4,26,27]. This difference might be related with variation in socio-demographic characteristic of study participants, the level of hospitals studied, nurse staffing and differences in doctor-patient relationship or nurses' participation in decision making process.

This study revealed that 48.3% of respondents had good perception on interpersonal nursing care related dimension which was lower compared to other studies conducted in Sri Lanka 63.07% and Nepal 65 [4,28]. This discrepancy might be because of nurses prioritized the completion of job related tasks rather than spending time to talk, work overload or due to lack of the concept of patient centered care. From the second dimension of efficiency related nursing care, this study revealed that 39.2% of participants perceived good as nurses gave them treatment/medication without any delay. This finding was lower than

study conducted in Jordan 66%. Also in our study 40.2% of patients perceived good as nurses maintain good coordination with other staff which was lower than study done in Jordan 66% [19]. This could have explained that staff members might not be sensitized to the importance of on-time medication administration, lack of understanding of the specific information or poor communication within the staff.

Regarding on information, our result showed that 26.6% and 38.8% of them had good perception as they have got enough information regarding their illness and investigation from nurses respectively, which was lower than study conducted in North Ethiopia 70.6% and 91.4% respectively [25]. This might be because of either the nurses' reluctance to exhibit these important qualities of providing care or their ignorance of the skills altogether.

| Variables | Label/category | Patient perception | | COR (95% CI) | AOR (95% CI) | p-value |
|---|---|---|---|---|---|---|
| | | Good perception (N, %) | Poor perception (N, %) | | | |
| Educational status | Unable to read and write | 93 (45.1) | 52 (24.5) | 13.950 (5.179, 37.578) | 21.026 (7.433, 59.479) | 0.001 |
| | Able to read and write | 22 (10.7) | 29 (13.7) | 5.917 (2.003, 17.485) | 8.897 (2.852, 27.756) | 0.001 |
| | Primary school | 51 (24.8) | 50 (23.6) | 7.956 (2.899, 21.831) | 10.740 (3.752, 30.748) | 0.001 |
| | Secondary School | 35 (17.0) | 42 (19.8) | 6.500 (2.313, 18.270) | 8.228 (2.819, 24.017) | 0.001 |
| | College and above | 5 (2.4) | 39 (18.4) | 1 | 1 | |
| Length of hospital stay | ≤ 7 days | 190 (92.2) | 181 (85.4) | 0.492 (.260, .292) | 2.386 (1.209, 4.709) | 0.012 |
| | ≥ 8 days | 16 (7.8) | 31 (14.6) | 1 | 1 | |
| Family support | Yes | 198 (96.1) | 191 (90.1) | 2.721 (1.177, 6.292)) | 3.531 (1.475, 8.453) | 0.005 |
| | No | 8 (3.9) | 21 (9.9) | 1 | 1 | |
| Type of admission room | Common room | 184 (89.3) | 202 (95.3) | 1 | 1 | |
| | Private room | 22 (10.7) | 10 (4.7) | .492 (.260, 0.929) | 3.676 (1.534, 8.811) | 0.004 |
| Hospital Setting | Pawe Hospital | 121 (55.3) | 98 (44.7) | 1.656 (1.124, 2.439) | 1.724 (1.127, 2.636) | 0.012 |
| | Assosa Hospital | 85 (42.7) | 114 (57.3) | 1 | 1 | |
| Note: Statistically significant at p<0.05 and 1=Referent | | | | | | |

**Table 4:** Bivariate and multivariate logistic regression analysis on patients' overall perception of nursing care quality in public hospitals of Benishangul Gumuze (n=418).

The study done in Sri Lanka 69.3%, North Ethiopia 94.7% and Nepal 66.4% of respondents had good perception on the nursing care environment [4,25-29]. But the current study showed only 41.1% of patients had good perception on the nursing care environment. This difference may be due to lack of resources or inadequate equipment in our study setting. Concerning nurses' competency, only 43.1% of participants had good perception as nurses who gave care for them were competent, which was lower than study conducted in Jordan 62%, Northwest Ethiopia 80.2% and China 84% [4,19,30]. This might be due to difference in nurses to patient ratio, the level of hospitals, and advancement of technologies which were used to provide quality nursing care.

The findings of this study showed that there was no relationship between socio demographic variables including gender, age, marital status, ethnicity, and religion with patient's overall perception. This finding was similar with study conducted in Nepal and China [26,30]. In various studies conducted on the subject; it was found that the patients' gender [9,15] and age [9,15,31] had significant association with patients' perception on nursing care. This can be due to the

difference in socioeconomic difference and level of understanding on quality of services.

The study showed that educational level was significantly associated with patient perception. This finding was in line with the study done in Turkey and Addis Ababa [9,32]. This could be explained by people who are highly educated might expect a higher standard of care than lower education status. In contrary, study done in Gamo Gofa and Mekelle showed that respondents attended college and University were more likely to be satisfied with nursing care service provided than illiterate once [31,32].

Patients' number of night spent in the ward had also an association with patients' perception. In this study those patients who spent ≤ 7 nights were 2.39 times more likely to have good perception than who spent ≥ 8 nights. It may because those who spent ≥ 8 nights might have a higher demand and they might have some other hospital acquired infection as they spent more time in the hospital. This finding was in agreement with study done in Turkey, Gamo Gofa and Black Lion [9,31,32].

In our study patients who had family support were 3.5 times more likely to have good perception towards nursing care quality compared to those who had no support/companion possession. This might be due to the possibility of decrease in expectations of nursing care because of companions met the patient's needs. In contrast, studies done in Turkey [1] revealed that there is no association between family support and patient perception on nursing care. This can be due to the difference level of caring in the hospital, availability of quality control and assurance at the hospital and the staffing.

Concerning the type of admission room, those admitted to private room were 3.68 times more likely to have good perception towards nursing care quality compared to those admitted in common rooms. It is in agreement with study done in Dessie Referral Hospital [15]. This might be related with the privacy and nurses perform their nursing duties in a careful and meticulous manner in the private room and also patients admitted at private room can get conducive environment for care and information about their disease and prognosis. Patients who were admitted to Pawe Hospital had good perception towards nursing care quality than those who cared in Assosa Hospital. This might be related to the difference in physical environment or the level of understanding of patients and difference of quality services between the two hospitals.

## Conclusion

In conclusion, the level of overall adult patients' perception about the quality of nursing care in the hospitals was low. Number of nurses available for their care, ventilation of the ward, safety and security in the ward and lighting condition of the ward were the four top items that patients were more satisfied. In contrary, the amount and type of information nurses gave to patients about their illness and investigation, the way nurses took immediate care for their request and cleanliness of the bed were the least satisfied items. These were the common problems for hospitals under study which requires urgent attention to enhance patients' perception at the same time to insure quality of nursing care. Patients' level of education, duration of hospitalization, family support/companion possession, type of admission rooms and type of hospital were identified as independent factors influencing the patients' perception among the admitted patients.

## Recommendations

The regional health bureau is recommended to design and launch intervention programs to improve the information provision and communication skills and the skills of making clients feel well of the nursing staff at the study hospitals. Regularly evaluate patients' perception to ensure the sustainability of quality of nursing care services. Hospital administrators also should have more efforts to ensure the nursing care environmental cleanliness by improving availability of necessary materials and supplies. The hospital should strengthen operational standards of nursing care practice to the staffs. Organize nursing education program and skill training workshops for the nurse's. Nursing staff should focus on patient centered care to reduce patient's length of hospital stay. The staffs should also consider consistent care for private and common rooms including patient's privacy and confidentiality during care. Further study is needed to understand the overall patients feeling using qualitative study and also the care providers' perceptions should be examined.

## Conflict of Interest

All authors declared that there is no conflict of interest. Funder of this study was acknowledged and they have no contribution in publication process.

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33.

## Journal of Nursing and Care

# Assessment of the "Post-Acute Care Discharge Scores" (PACD) [Translated from the Original Article in German Published in Pflegewissenschaft 2015; 11: 582-95]

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### Abstract

A systematic and early biopsychosocial assessment of older patients in acute care hospitals is necessary for a proactive and effective discharge plan in order to identify patients at risk for a care deficit after hospitalization. Our study aim was to adapt the, "Post Acute Care Discharge" (PACD) Scores developed in Geneva for use in the Cantonal Hospital of Aarau and evaluate as screening instruments in selected medical patients in a medical university clinic. Among 308 patients admitted from home with urinary tract infections, falls, syncope or heart failure day 1 PACD ≥ 8 had a sensitivity of 90% and a specificity of 62% and day 3 PACD ≥ 8 a sensitivity of 80% and a specificity of 60% to identify a nursing care deficit. The PACD is used as a screening instrument to identify patients at risk and therefore facilitate a structured, interdisciplinary and patient-centered analysis of the situation and discharge plan.

**Keywords:** Screening method; Post-acute care needs; Hospitalized medical patients

## Introduction

In Switzerland, 17.2% of the total population comprises adults older than 65 years of age with an increasing tendency [1]. Living with one or more chronic diseases is common in older adults. Consequently, there is an increase in nursing care needs in this group of patients [2]. Patients with treatable medical conditions are usually admitted to acute hospitals if they have no family members to provide them with nursing care. Later during hospital stay, nursing problems often arise [3,4]. Simonet et al. [5] reported that the most frequent cause for delayed hospital discharge was the non-availability of a bed in a post-acute care institution. According to Boutin-Foster et al. [6], 30% of delayed hospital discharges were due to non-medical reasons. For example, when discharge to home is not possible, no free bed in a nursing home is available or delivery of nursing or medical aids is delayed. For inpatients with respiratory tract infections, nursing care reasons such as waiting for a free bed in a post-acute institution have become significantly more important [7]. Even in medically stable respiratory tract infection patients with a structured triage and discharge plan, organizational reasons were responsible in 50% of the cases for delayed discharge [8]. A prolonged hospital stay due to nursing and organizational reasons was evident in 42.7% of medically stable patients with decompensated heart failure [9]. In contrast to this, regarding discharge decision, physicians, nurses, patients and relatives give priority to medical reasons [10,11].

Older patients who are hospitalized due to acute conditions often lose functional abilities and independency of Activities of Daily Living (ADL) [3,12-14]. Maintaining self-care abilities is therefore essential for the discharge plan and for preparing patients to get back to their former living situation. Moreover, half of the patients who were older than 70 years and were hospitalized with an acute medical condition were not able to recover to their baseline function one year after discharge [15]. They suffered from serious consequences such as admission to a nursing home or death. For this reason, patients with biopsychosocial risks should be early identified–preferably at hospital admission, in order to determine discharge and follow-up care needs.

The German Experts Standard on "discharge management in nursing" emphasized that early systematic assessment is required to estimate post-discharge care deficit of patients in order to suit their needs [16]. Moreover, the Austrian "Quality Standard for admission and discharge management"[17] concluded that the discharge planning should begin with the nursing anamnesis. Patients' and relatives' feeling of insecurity is usually due to the lack of professional post care. Furthermore, rehospitalization could be caused by the interruption of care. Bowles et al. [18] suggest an automated decision-making assessment to identify patients with post-discharge care needs. A standardized assessment to identify patients with post-discharge care needs is also considered to be needed by Holland et al. [19]. To be successful, nurse-guided discharge planning requires multidisciplinary collaboration and communication with patients and their families [16,20]. A comprehensive arrangement of discharge and post care for older patients leads to better patient outcomes, decreases the rate of rehospitalization and shortens the length of hospital stay [21-23].

## Background

### Predictors of post-acute care needs

Campbell et al. [24] identify physical functioning, age, presence of geriatric problems, male gender and living alone as predictors of a discharge to a post-acute care institution. Rudberg et al. [25] investigated characteristics of patients admitted to a nursing home after hospital discharge. The authors found following determinants:

older age, living alone and preexisting limitations in the ADL before hospitalization. Cornette et al. [26] outlined age, limited Instrumental Activities of Daily Living (IADL), cognitive deficiency, rate of fall in the last years and poor self-evaluation as the five risk factors which could be assessed at admission. A systematic review recognized older age, cognitive deficiency, difficulties with ADL and IADL before admission, and depression as the strongest predictors of functional decline [27].

The following factors remained constantly important in the various studies: older age, living alone, functional disability and preexisting limitations in the ADL respectively IADL prior the hospital admission [24-26].

## Assessment tools/Measurements

Grosse Schlarmann et al. [28] reviewed the Self-Care Index (SPI), which was created based on the result-oriented nursing assessment, acute care (ePA-ac), as a screening tool to identify post-discharge nursing care deficit.

In a data analysis of 620 cases, the SPI showed with a cut-off < 32 a sensitivity of 81% and a specificity of 94%. However, the activities of the social workers as part of the nursing case management initiated with SPI<32 were used as external validation criterion.

The BRASS (Blaylock Risk Assessment Screening Score)-Index is a further discharge planning instrument which is applied shortly after admission. It predicts the necessity of discharge planning and can therefore prevent problems and undetected post-discharge care needs. The original English BRASS Instrument was translated and tested for validity in the Netherlands by Mistiaen et al. [29]. The Index composes information about age, living situation/emotional support, functional and cognitive status, behavioral pattern, mobility, perceptional deficit, previous hospital stays and emergency consultations, medically active problems and medication use. The authors found that with a cut-off of 9 points, the BRASS-Index has a sensitivity of 76% and a specificity of 75% in detecting a discharge to a location other than home. When applied in rehabilitation (n=104), the BRASS-Index was modified using Rasch analysis. In regard to reliability (0.78) and construct validity (correlation with FIM, r=-0.853; p<0.001; a higher risk of discharge to a nursing home at a Score of 12 RR=2.1, 95% CI=1.7-2.5), it shows a potential for further examination [30]. In a publication of an article 2010, Hoogerduijn et al. [31] compared the instruments Identification of Seniors at Risk (ISAR), Hospital Admission Risk Profile (HARP) and Care Complexity Prediction Instrument (COMPRI). The aim was to show the instrument which most precise identifies patients with a risk of functional disability. None of the instruments was satisfactorily able to provide a valid estimation of the addressed risk.

Boutin-Foster et al. [6] used a preexisting instrument of the social services and a literature research to generate the SWAAT (Shock Waves therapy and Arginine for Achilles Tendinopathy)-Score. It is supposed to identify patients with complicated social needs who require social services within 24 hours. The SWAAT reached a test-retest reliability of 0.7, the determination coefficient was $r^2$=0.40 (p=0.05), the AUC (Area Under the Curve): 0.75 and the relationship between SWAAT and both the need for social services (p<0.001) and the duration of hospital stay was significant (p<0.001). Items of the SWAAT Scores are limited ability to walk, patient cannot be discharged to the former place of residence, has home health care services, needs additional help at home, needs help to leave the hospital and/or with medical visits, is confused at admission and lives alone.

The Post-Acute Care Discharge scores (PACD) were developed in Geneva to identify patients with post-acute care needs, to enable the discharge plan to be discussed during ward rounds [5]. Two models with significant predictors (PACD version day-1 and day-3) were calculated to predict a discharge to a post-acute care institution. Both versions (day-1 and day-3) showed good predictive ability in medicinal patients (AUC: 0.81 and 0.82 respectively). Scores of ≥ 8 PACD day 3 reached a sensitivity of 87% and a specificity of 63% [5]. The PACD includes information about medically active problems, the support situation at home and the age. Furthermore are questions integrated related to ADL/IADL which is very much in line with the Swiss nursing culture. The PACD is best applicable for a risk estimation of a post-acute care need after hospital discharge and an early assessment at Interdisciplinary Emergency Center (INZ), because the questions are related to the situation prior the admission [32].

## Aim of the Study

The aim of phase two of the OPTIMA Project (Optimized Patient Transfer through Innovative Multidisciplinary Assessment) [33] was to locally test the applicability of the PACD and to analyse the PACD as screening instruments in order to identify potential improvements or modifications. In addition, we intended to clarify whether the ideal point of time for the application of PACD was within 24 hours on day-1 or on day-3. The sensitivity and specificity of the Swiss-German modified PACD's should be validated to evaluate its applicability on all medicinal patients of the Cantonal Hospital of Aarau AG (KSA; a teaching hospital in the German-speaking Switzerland)

## Methods

### Design

For the purposes, a prospective observational design has been selected.

### Sample

Patients' recruitment and data collection was carried out in the interdisciplinary emergency center and on the wards of the medical university clinic of the KSA. Around 6000 patients are admitted yearly to the department of internal medicine which has around 400 employees from various disciplines. Four prevalent diagnoses were selected and a sample of around 400 patients was aimed for (1 winter season).

Patients were consecutively included if they were more than 18 years old, diagnosed with heart failure, fall, syncope or urinary tract infection and were admitted to the emergency department. Patients with limited cognitive ability or inability to communicate in German were excluded from the study.

### Ethical considerations

Within the framework of the OPTIMA project, the quality management project was approved by the ethics commission of the canton Aargau (EK AG 2010/029). The responsible physician informed the patients orally and in a written form about the quality management project. The ethical commission waived an informed consent because

of the observational nature of the study and to avoid selection bias. An oral consent was obtained from the patients for the telephone interview one month after the first data collection.

## Instruments

To estimate the risk of post-acute care needs, patients' living situation was assessed using the PACD (Version day-1 and day-3). The PACD Version day-1 includes 15 items (Figure 1):



**Figure 1:** PACD day.

• The number of medically active problems on admission (1 point for each affected organ system). A medically active problem is one with therapeutic or diagnostic consequences for the actual treatment. One point is given for each organ system (based on the ICD 10 categories), whereas in some cases two points are given for diagnoses like respiratory tract infections with one point for the organ system and one point for the infectious disease. Are there more than one problem in the same organ system (for example, anemia, thrombopenia, leukopenia as a hematological problem) only one point is given (personal communication with Louis Simonet 17.05.2010; unpublished clinical documents 2010)

• Unavailability of a person in the same household who can provide help (4 points).

• Number of limitations in 12 ADLs or IADLs (grooming, dressing/undressing, toileting, bathing or taking a shower, feeding, moving, transferring, travelling *via* car or public transportation, food or clothes shopping, meal preparation, housework, medication use (1 point per limitation).

• Age (1 point for each decade starting at the age of 60; for example, 2 points for someone between 70-79 years old).

"Internal hospital transfer", an item of the original score [5], occured rarely in the pilot study conducted in 2009/2010 in patients with respiratory tract infections [33] where it could not significantly predict the risk for post-acute care needs. Therefore, it was omitted in the KSA version.

In the original Geneva PACD day-1, no scoring was defined for the admission day model, because only the day-3 version score was implemented. The principle for point definition used by the authors for the scoring version day-3 [5] was adopted and applied on day-1 model. To define the point allocation, the standardized regression coefficients of day-1 model were compared with each other. Based on their value in relation to each other, proportional points per answer were defined (see explanation of day-3 scoring). Based on clinical considerations, the point definition for the age group was set to start from the age of 60, where one risk point was given for each 10 years with a maximum of 5 points for patients older than 99 years.

• The cut-off for risk determination was set to ≥ 8 points.

• The PACD version day-3 contained 5 items (Figure 2):

• The medically active problems at admission (1 point for each affected organ system)

• If the patient did not live with someone at home who could help (4 points)

• If the patient needed help with medication management before hospital admission (4 points)

• Dependency for bathing/taking a shower on day-3 (4 points)

• Dependency in transfers bed/chair on day-3 (4 points)

The scoring was adopted from Simonet et al. [5]. The justification of the point definition in the original PACD was as follows. The number of medically active problems, which is a continuous predictor in the

logical regression model, showed a regression coefficient of 0.24. This value was 4 times smaller than the standard regression coefficient of

the other 4 predictors. Therefore, the 4 predictors were assigned 4 points and the medical problems 1 point pro problem [5].



**Figure 2:** PACD day 3

The cut-off of risk determination for post-acute care need with PACD day-3 was adopted from the Geneva Version with ≥ 8 points [5]. The scoring of both the PACD version day-1 and day-3 was verified on patients with respiratory tract infections as part of the pilot study OPTIMA I (n=180) in the KSA. Both versions showed the best cut-off with 8 points showing an acceptable sensitivity and specificity (day-1: sensitivity 82%, specificity 55%, AUC: 0.80; day-3 was primarily tested on the fourth day: sensitivity 69%, specificity 76%, AUC: 0.79) [7,33]. Consequently, the cut-off of PACD day-1 was set to ≥ 8 points. Based on the PACDs, patients were then divided in two or three categories. For the allocation of patients in two categories, low risk was assigned to scores<8 and a risk for post-acute care needs was assigned to scores ≥ 8. On the other hand, for the allocation of patients to three categories, a low risk for post-acute care needs was assigned to<8, a raised risk to 8-15 and a very high risk to scores >15 points. A risk for post-acute care need was defined as discharge to a post-acute care facility (for example, temporary care, transient nursing care, health resort treatment, rehabilitation or nursing home).

### Data collection

Data collection was carried out from September 2010 to September 2011. Data were collected from patients with the above-mentioned health problems. Physicians at the INZ collected clinical characteristics like confusion and the number of comorbidities. The health care team at the INZ (nurses/physicians) collected and evaluated the PACD day-1 (admission day). If this was not possible, the PACD scores were collected retrospectively by the study team members on the ward using the same questions. In this case, data were collected from interviewing the patient and from the clinical patient record. On the third day after admission, the nursing staff of the ward evaluated in addition to the information from the PACD day-1 the patients' abilities for grooming and mobility. The SPI was measured as part of the standard nursing assessment within the first three days after admission. Patients'

residence prior to admission (for example, home, transfer from another hospital, nursing or elderly home, etc.), discharge destination, nursing care complications or death of patients were collected from the electronic clinical patient records by the study team. Patient discharge home/to a geriatric apartment (with or without formal or informal ambulatory support) was differentiated from discharge to a post-acute care facility (temporarily or permanently).

### Data cleaning

The consistency of the answers based on the same situation (point of admission or before) of day-1 and day-3 scores was verified. Whereas the questioning on day-1 and day-3 was conducted by different persons and on two different locations (emergency room/ward), 94 pieces of information (10% of the cases) which should have been identical (as they were related to the situation before admission) were differently documented. All inconsistency was revised from the electronic clinical patients' records and verifiably modified. Any missing data were not replaced.

### Analysis of the diagnostic quality

Knottnerus et al. [34] recommend the evaluation of the diagnostic estimations. They point out that the development and evaluation of the research-based diagnostic methods are less common than the evaluation of interventions in the evidence-based health care. To evaluate the diagnostic quality, a test objective should be defined. In this study, the test objective was to identify the risk of post-discharge transfer to a post-acute care facility.

The analysis aimed to illustrate the reliability of using the PACD on admission day and on the third hospitalization day to estimate the post-acute care needs.

The key figures are sensitivity, specificity and "Receiver Operating Characteristics" (ROC) with "Area Under the Curve" (AUC). An AUC

test of 0.5 was considered useless, while an AUC test of 1.0 was the maximal score [34].

The primary endpoint of the study was the discharge to post-acute care facility. The calculations of the AUC ("Area Under the Curve", resulting from the ROC "Receiver Operating Curve" analysis) and the sensitivity and specificity of the PACD on day-1 and day-3 were based on this target value.

### Description measurement of the diagnostic tests PACD day-1 and 3

The PACD should be implemented as a screening tool in the patient triage to identify every potential patient at risk of post-acute care needs who needs further assessment. Therefore, the requirement of high sensitivity and adequate specificity is justified. Scores of >70% sensitivity and if possible >70% specificity are recommended [35]. For the interpretation of the test question, the sensitivity is the most important measure followed by the AUC and the specificity. A very low specificity is considered unfavourable as it would lead to unnecessary extra assessment of the patients (additional effort), who do not need post-acute care transfer [34].

### ROC analysis and AUC

ROC analysis was used to analyse the PACD score from day-1 and day-3 with the target variable "transfer to an institution" and to determine the AUC (SPSS, 2007) [36]. The AUC evaluated the PACD day-1 and day-3 and the cut-offs were determined using the ROC analysis.

Patient characteristics were analysed descriptively using frequencies, percentages, median, mean and standard deviation based on the data types and variable distributions. Statistical analysis was performed using SPSS Version 20.0.

## Results

### Sample characteristics

A total of 371 patients with urinary tract infection, congestive heart failure, fall or syncope who were admitted to the INZ of the KSA and were then transferred to a medical university clinic ward were included in the study.

The average age of patients was 68.9 years; 43.9% were males. The majority lived at home with a partner/family (62.5%). The number of patients who lived in a nursing home before admission varied depending on the diagnosis (1.3%-16.5%). The sociodemographic data like age, gender and living situation are shown in Table 1. The medical characteristics of patients with congestive heart failure [9] and patients with urinary tract infections [37] were published previously.

| | Patients total (n=371) | Syncope (n=132) | Urinary tract infection (n=127) | Congestive heart failure (n=75) | Fall (n=37) |
|---|---|---|---|---|---|
| Sociodemographic characteristics | | | | | |
| Gender | | | | | |
| Male, number (%) | 163 (43.9%) | 71 (53.8%) | 34 (26.8%) | 43 (57.3%) | 15 (40.5%) |
| Age mean; median | 68.9;74.6 | 65.8; 72.2 | 61.8; 67.9 | 79.8; 81.5 | 82.1; 84.0 |
| (SD) | (± 19.7) | (± 20.6) | (± 20.8) | (± 8.75) | (± 10.9) |
| Living Situation, number (%) | | | | | |
| Living alone | 103 (28.2%) | 40 (30.3%) | 19 (15.7%) | 28 (37.3%) | 16 (43.2%) |
| Living with partner/family | 228 (62.5%) | 90 (68.2%) | 79 (65.3%) | 44 (58.7%) | 15 (40.5%) |
| Geriatric and nursing home | 27 (7.4%) | 2 (1.5%) | 20 (16.5%) | 1 (1.3%) | 4 (10.8%) |
| Another location, eg. geriatric apartment | 7 (1.9%) | - | 3 (2.5%) | 2 (2.7%) | 2 (5.4%) |

**Table 1:** Sociodemographic characteristics.

71.1% of patients reported the availability of someone who could help within the household (Table 2). The results showed the extent to which patients required help with the IADL within two weeks before admission. Patients showed an average of 2.8 (SD ± 4.0) restrictions in the ADL/IADL and the majority of patients showed no restrictions before admission (median 0).

Patients with congestive heart failure and falls were older, lived more alone at home and required more help before hospital admission. Moreover, patients with urinary tract infections were mostly females and lived in nursing or elderly homes before admission.

The number of medically active problems at admission to the INZ was a median of 2. Nursing complications were observed in 18.4% of the patients and 4.9% of patients died during hospitalization (Table 3). The collected data on day-3 showed that 55.3% of the patients were dependent with bathing or taking a shower and 31.8% needed help with transferring. Consequently, fall patients were the most restricted in this regard. This was supported by the first estimation of the SPI results.

| | Patients total (n=371) | Syncope (n=132) | Urinary tract infection (n=127) | Congestive heart failure (n=75) | Fall (n=37) |
|---|---|---|---|---|---|
| Living with a person who can provide help, number (%) | 256 (71.1%) | 90 (69.8%) | 107 (87.0%) | 47 (64.4%) | 12 (34.3%) |
| Formal help in the last two weeks before admission, number (%) | | | | | |
| Nursing care at home, housework with nursing care | 77 (21.2%) | 11 (8.3%) | 29 (24.0%) | 23 (31.1%) | 14 (37.8%) |
| Informal help in the last two weeks before admission, number (%) | | | | | |
| Help from family, neighbors, friends | 80 (22.0%) | 21 (15.9%) | 25 (20.7%) | 25 (33.8%) | 9 (24.3%) |
| Needed help before admission to the hospital with: number (%) | | | | | |
| Grooming | 90 (25.0%) | 15 (11.6%) | 39 (31.7%) | 21 (28.8%) | 15 (42.9%) |
| Dressing | 73 (20.3%) | 13 (10.1%) | 28 (22.8%) | 19 (26.0%) | 13 (37.1%) |
| Toileting | 51 (14.2%) | 7 (5.4%) | 25 (20.3%) | 12 (16.4%) | 7 (20.0%) |
| Bathing or taking a shower | 94 (26.1%) | 16 (12.4%) | 40 (32.5%) | 23 (31.5%) | 15 (42.9%) |
| Feeding | 32 (8.9%) | 5 (3.9%) | 17 (13.8%) | 5 (6.8%) | 5 (14.3%) |
| Walking | 54 (15.0%) | 6 (4.7%) | 28 (22.8%) | 13 (17.8%) | 7 (20.0%) |
| Transferring | 46 (12.8%) | 6 (4.7%) | 25 (20.3%) | 10 (13.7%) | 5 (14.3%) |
| Travelling *via* car or public transportation | 99 (27.5%) | 18 (14.0%) | 40 (32.5%) | 27 (37.0%) | 14 (40.0%) |
| Food or clothes shopping | 116 (32.2%) | 20 (15.5%) | 44 (35.8%) | 33 (45.2%) | 19 (54.3%) |
| Meal preparation | 107 (29.7%) | 20 (15.5%) | 41 (33.3%) | 27 (37.0%) | 19 (54.3%) |
| Housework | 132 (36.7%) | 25 (19.4%) | 48 (39.0%) | 36 (49.3%) | 23 (65.7%) |
| Medication use | 100 (27.8%) | 17 (13.2%) | 43 (35.0%) | 24 (32.9%) | 16 (45.7%) |
| Number of limited | 2.8; 0.0 | 1.3; 0.0 | 3.4; 0.0 | 3.4; 2.0 | 4.5; 4.0 |
| ADL /IADL; mean; median (SD) | (±4.0) | (±2.9) | (±4.5) | (±3.9) | (±4.2) |

**Table 2:** Availability and need for help prior to hospital admission; total patients.

| | Patients total (n=371) | Syncope (n=132) | Urinary tract infection (n=127) | Congestive heart failure (n=75) | Fall (n=37) |
|---|---|---|---|---|---|
| Clinical Characteristics | | | | | |
| Hospital Status, number (%) | | | | | |
| Ambulatory | 90 (24.3%) | 56 (42.4%) | 29 (22.8%) | 2 (2.7%) | 3 (8.1%) |
| Inpatient | 281 (75.7%) | 76 (57.6%) | 98 (77.2%) | 73 (97.3%) | 34 (91.9%) |
| Number of medically active problems at admission; Mean; Median (SD) | 2.6; 2.0 (± 1.4) | 2.1; 2.0 (± 1.4) | 2.9; 3.0 (± 1.2) | 2.6; 2.0 (± 1.3) | 3.5; 3.0 (± 1.6) |
| Self-Care Index (SPI) Day 1-3; Mean; Median (SD) | 34.2; 38.0 (± 7.6) | 37.9; 40.0 (± 3.7) | 32.1; 37.0 (± 9.2) | 32.8; 35.0 (± 7.7) | 30.2; 30.5 (± 6.5) |
| Charlson Comorbidity Index; Mean; Median (SD) | 4.6; 5.0 (± 3.3) | 3.9; 4.0 (± 3.2) | 3.9; 4.0 (± 3.4) | 6.6; 6.0 (± 2.7) | 5.5; 6.0 (± 2.5) |

| Nursing complications, number (%) | 68 (18.4%) | 14 (10.6%) | 25 (20.0%) | 19 (25.3%) | 10 (27.0%) |
|---|---|---|---|---|---|
| Death during hospital stay, number (%) | 18 (4.9%) | 2 (1.5%) | 5 (3.9%) | 7 (9.3%) | 4 (10.8%) |
| Confusion, number (%) | 33 (8.9%) | 4 (3.0%) | 21 (16.7%) | 3 (4.0%) | 5 (13.5%) |
| Independent with bathing or taking a shower day 3, number (%) | 146 (55.3%) | 30 (44.8%) | 51 (54.3%) | 39 (54.9%) | 26 (81.3%) |
| Independent transferring day 3, number (%) | 84 (31.8%) | 13 (19.4%) | 34 (36.2%) | 21 (29.6%) | 16 (50.0%) |
| * SPI: the higher the score, the more independent. Minimum 10, maximum 40. | | | | | |

**Table 3:** Clinical characteristics; total patients.

The average PACD-Score on day-1 was considerably higher in fall patients than in patients with one of the other evaluated diseases (Table 4).

The majority of patients (77.7%) were discharged home, 11.3% were discharged to a nursing home, 3.4% to temporary care, 2.8% to other places, 2.3% to rehabilitation, 2.0% to another hospital and 0.6% to health resort treatment. Most of the patients discharged home had syncopes and most of the patients discharged to a post-discharge care institution (rehabilitation, health resort, temporary care or nursing homes) experienced falls (Table 5).

### Diagnostic key figures

With a sensitivity of 90%, the PACD day-1 Score $\geq 8$ points was more sensitive (62% specificity) than the score $\geq 8$ day-3 with 80% (60% specificity) (Table 6). In all cases, the PACD showed the best sensitivity with a cut-off $\geq 8$. With cut-offs >8 or >9 the specificity was higher which consequently caused a decrease in the sensitivity.

The accuracy related to transfer in a post-acute institution was good on day-1 and day-3 (AUC: 0.82-0.87 and AUC: 0.79-0.81 respectively). The PACD version day-1 reached the maximum accuracy (AUC 0.87) in the whole group of patients (Figure 3).

| | Patients total (n=371) | Syncope (n=132) | Urinary tract infection (n=127) | Congestive heart failure (n=75) | Fall (n=37) |
|---|---|---|---|---|---|
| PACD–Score* day 1; Mean; Median (SD) | 8.4; 7.0 ( ± 5.8) | 6.2; 5.0 (± 4.9) | 8.2; 6.0 (± 6.0) | 9.9; 9.0 (± 5.2) | 13.5; 13.0 (± 5.1) |
| PACD–Score* day 3 Mean; Median (SD) | 9.0; 8.0 (± 5.5) | 7.8;6.0 (± 5.1) | 8.9; 7.0 (± 5.8) | 8.5; 7.0 (± 5.2) | 13.3; 14.5 (± 4.5) |
| *PACD: the higher the score the higher the risk | | | | | |

**Table 4:** PACD Scores.

| | Patients total (n=371) | Syncope (n=132) | Urinary tract infection (n=127) | Congestive heart failure (n=75) | Fall (n=37) |
|---|---|---|---|---|---|
| Discharge locations, number (%) | | | | | |
| At home | 275 (77.7%) | 117 (90.0%) | 92 (75.4%) | 50 (72.5%) | 16 (48.5%) |
| Rehabilitation | 8 (2.3%) | 2 (1.5%) | 1 (0.8%) | 3 (4.3%) | 2 (6.1%) |
| Health resort treatment | 2 (0.6%) | 1 (0.8%) | - | - | 1 (3.0%) |
| Temporary care | 12 (3.4%) | 3 (2.3%) | 2 (1.6%) | 3 (4.3%) | 4 (12.1%) |
| Nursing home | 40 (11.3%) | 3 (2.3%) | 19 (15.6%) | 8 (11.6%) | 10 (30.3%) |
| Other hospital | 7 (2.0%) | 3 (2.3%) | 1 (0.8%) | 3 (4.3%) | - |
| Other location, e.g. geriatric apartment | 10 (2.8%) | 1 (0.8%) | 7 (5.7%) | 2 (2.9%) | - |

**Table 5:** Discharge locations.

## Discussion

The aim of the study was to illustrate the ability of the PACD to identify post-acute care needs. The diagnostic value of the PACDs for risk identification showed the following three main points. The screening quality of the PACD on day-1 is high with a sensitivity of 90%. The main criterion to evaluate the screening ability of PACD is the high sensitivity, as the instrument is intended to be used for screening purposes. As expected, the instrument showed lower specificity, however it is considered high enough for the instrument intended purpose. The specificity reached almost 70% and therefore lies near the recommended range for screening tests. As a global measurement, the AUC confirmed the benefits of systematic estimation.



**Figure 3:** ROC curve PACD day 1; total patients.
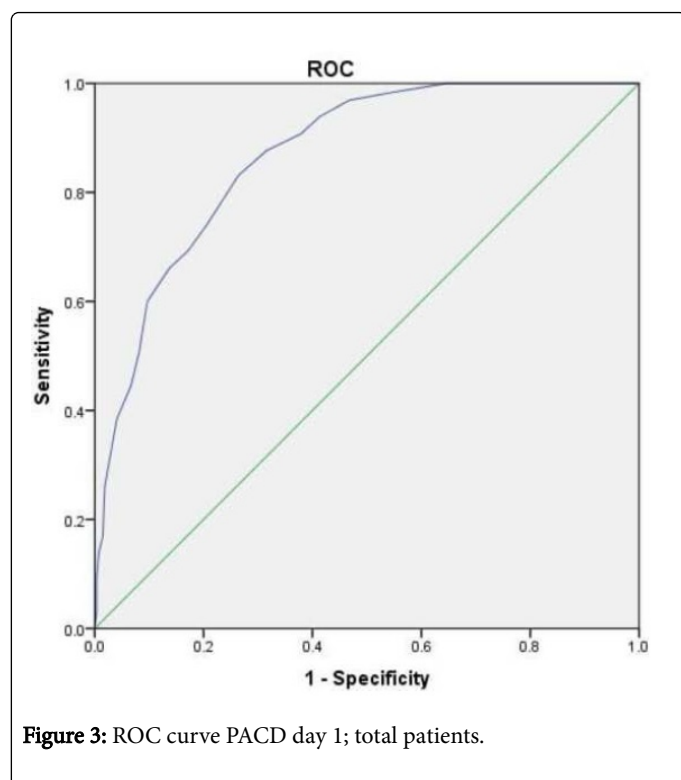
The current study showed slightly lower sensitivity and specificity (80% and 60% respectively) on day-3 compared to the values of the Geneva PACD scores: sensitivity 87% and specificity 63% [5]. Moreover, the AUC-values of day-1 (AUC: 0.82 *vs.* AUC Geneva: 0.81) and the values of day-3 (AUC: 0.79 *vs.* AUC Geneva: 0.82) were similar [5]. The overall relatively small differences in day-1 could be attributed to the age factor – weighted 60 years and above – and to the exclusion of the item "transfer within the hospital".

The results of the first project phase OPTIMA I [33] confirmed a significant relationship between the risk of post-acute care needs of patients with respiratory tract infections and transfer destination, which could also be shown in the Geneva version [5]. In the more extended diagnosis groups of OPTIMA II, the estimation of biopsychosocial risks showed sensitivity and specificity similar to that of the respiratory tract infection patients, hence a potential additional benefit to the discharge organization.

### Strengths and limitations

As recommended in the expert standard [16], in Bowles et al. [18] and in Holland et al. [19], the PACD–with its good sensitivity and specificity values–can be used as a standardized assessment instrument to early identify patients with post-acute care needs. The PACD data can be collected mainly by nurses, which is in accordance with the expert standards [16]. The physicians' role with the PACD is limited to the assessment of the medically active problems. Data collection is tested in the clinical context and has been proven feasible.

Some limitations of the study need to be addressed. Data were not collected from 11 (3%) of the potential patients at admission or during their hospital stay due to the poor general condition of the patients, the need for intensive medical treatment or patients' refusal to participate in the study. Furthermore, the lack of distinct documentation resulted in missing data. Whether a patient was transferred from a nursing or elderly home to the hospital was not differentiated. Most of the elderly homes in Switzerland have an integrated nursing ward and are therefore similar to nursing homes. A possible bias is therefore improbable.

| Cut-off | ≥ 8 | > 8 | > 9 |
|---|---|---|---|
| PACD day 1 | | | |
| Patients total (n=3341) | | | |
| Sensitivity | 91% | 88% | |
| Specificity | 62% | 68% | |
| AUC: 0.87 | | | |
| Hospital admission from home (n=308) | | | |
| Sensitivity | 90% | 86% | |
| Specificity | 62% | 68% | |
| AUC: 0.85 | | | |

| Without ambulatory Patients and Patients without admitted from institution (n=233) | | | |
|---|---|---|---|
| Sensitivity | | | |
| Specificity | 93% | 88% | 80% |
| AUC: 0.82 | 51% | 59% | 65% |
| PACD day 3 | | | |
| Patients total (n=246) | | | |
| Sensitivity | 82% | 79% | |
| Specificity | 61% | 64% | |
| AUC: 0.81 | | | |
| Hospital admission from home (n=220) | | | |
| Sensitivity | 80% | 76% | |
| Specificity | 60% | 64% | |
| AUC: 0.79 | | | |
| The deviations n are evident, because not all complete records of the 371 included patients could be collected. | | | |

**Table 6:** Diagnostic key figures.

Furthermore, data were collected by nurses at the INZ and on the ward. Although it probably was less standardized than that carried out by the study team, it was integrated in the clinical routine. Overall, this did not seem to be a significant problem, as only 10% of the data on day-1 and day-3 which should have been identical were documented differently. It is therefore to be assumed that the application of the instrument in the daily routine without monitoring by the study team gets less precise and causes more variable data. However, an enhanced precision is expected with progressively gained skills. The collected PACD scores were not blinded. They were accessible in the electronic patient system (day-3) and the paper documentation of the INZ (day-1) was stored in the medical history. It is therefore possible, that the decision of nurses and physicians to transfer patients to post-acute care institutions was based on the scores of the collected data.

The wide spectrum of the medical diagnosis (urinary tract infection, congestive heart failure, fall and syncope) which bears differences in the need for support, independence and social situation could have caused slight distorted positive diagnostic values (sensitivity/specificity). A misclassification in the direction of false positive rate (lower specificity) was taken into account because the aim was to reach high sensitivity. Another limitation related to the transfer to a post-acute care institution was the inability to check whether such an institution was the most suitable discharge destination. The collected data showed merely the discharge destination.

## Conclusion

Although the studied patient group did not represent the whole spectrum of medical patients, it is recommended to use the PACD version of day-1 in order to start the discharge plan early. PACD day-1 might be more effective than day-3 because it allows for more time to plan the discharge and to involve the social worker at an early stage if needed. The sensitivity of day-1 was slightly higher than that of day-3. To have the emergency team, as pioneers in Switzerland, identifying extraordinarily early and systematically patients at risk seems at the first glance unfamiliar. Therefore, the health care team, especially nurses is required to understand the importance of the collected information and be able to interpret it and put it into action. In such a way, it would be possible to early identify post-acute nursing and care deficits, to set early and structured priorities, to allow nurses and physicians to analyse the situation together and to be able to react appropriately. On the one hand, a targeted assessment of the situation is important for an early discharge plan. On the other hand, it is important to involve the social workers and the physiotherapists, plan and reevaluate the required interventions for the discharge as recommended by Simonet et al. [5].

**Future studies should:**

- Evaluate the screening qualities of the PACD in a non-selective and larger sample of medical patients.
- Evaluate the prediction power of the PACD on the longtime course to include re-hospitalization and development of individual nursing care needs.
- Test the combination of PACD with other social, clinical information and/or laboratory biomarkers regarding prediction improvement.
- Directly compare the PACD with other screening instruments, for example, SWAAT, BRASS-Index or SPI.
- Verify the potential for process optimization by application of the screening to allow automatic referral to the social worker in a discharge-oriented case management as part of an intervention study.
- Verify whether the discharge destination was retrospectively the most suitable for the patient.

In the OPTIMA Phase 3, a multi-professional communication platform would be developed. The so-called "ward round tool" [38]

integrates the PACD systematically in patient evaluation and discussion of discharge plan during physician-nurse rounding. This would foster close collaboration between physicians, nurses and social workers. The information in the PACD about the availability and need of care or assistance at home gives the social services a prompt picture of the possible care needs. This study provided the prerequisites to develop general standards to optimize the patient process in the medical university clinic and in the whole hospital. This, in accord with the recommendation of Ackerly et al. [39] supports the development of new models of coordination between acute and post-acute care that are team-based and patient-oriented through the exchange of clinical and social information in a shared information technology.

The application of post-acute nursing care needs estimation will be further studied and evaluated. Furthermore, data of a bigger sample of medical inpatients at our university clinic will be collected 2012-2013 to re-evaluate the diagnostic characteristics of the PACD. The analysis of these data would show whether the PACD can be applied to all medical patients and which point of time is the most significant to collect the score.

## Acknowledgement

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# Journal of Nursing and Care

**Research Article**      Open Access

# Transitional Care for Seniors: What do Care Partners and Seniors Really Experience?

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## Abstract

**Background:** Current senior's care provided within the Canadian health care system is not often person-centred; nor is it always in accordance with gerontological best practices. Furthermore, gaps also exist in access to and continuity of care services, leading to poor quality of care and avoidable readmissions or setbacks in seniors' health or chronic care conditions. The impacts of these gaps are compounded when critical information is not transferred with seniors when they change care settings (i.e. transferring between hospital, home, retirement communities, etc.). Research suggests that seniors do not always receive resources required to support them through these transitions, and advocates for their needs.

**Methods:** This qualitative study's objective was to explore 35 seniors' and 25 care partners' care transition experiences in a suburban community, in Canada. This study is part of a larger project aimed at developing a better understanding of how to enhance care and transitions through identifying seniors' and care partners' perspectives of access to and continuity of quality care, and awareness and information availability during care transitions.

**Results:** A situational analysis revealed that several factors impede successful transitions for seniors, including not being listened to; needs being ignored; task-focused and splintered care; neglect of the care context; and absence of care continuity.

**Conclusion:** Transitional care is often not person-centred, does not follow best practices, and presents with several gaps in access to and continuity of health care services. These findings informed subsequent stages of the overall research project aimed at creating better transitions and care experiences for seniors.

**Keywords:** Transitional care; Seniors; Care partners; Continuity of care; Health systems; Person-centered care; Chronic disease

## Introduction

Health care organizations, clinicians, researchers, and policy makers recognize a significant need to improve seniors and care partners' (i.e., families and/or friends) care transition experiences. Often, care and services provided before, during, and after seniors' transitions are not person-centred, lack chronic disease prevention and management (i.e., care standards in accordance with the latest evidence to support best outcomes) [1] and are not in accordance with gerontological best practices (i.e., care standards in accordance with the latest evidence to support best outcomes) [2,3]. In addition, several gaps exist in the continuity of seniors' health services. The impacts of these gaps are compounded when critical information does not transition with a senior when he/she moves to a different care setting [2]. Seniors and care partners' feedback suggests that their input and decisions are not always valued, and that they do not receive the resources required to support them through transitions and advocate for their needs [2]. In order to improve transitional care and promote person-centred transitions that are consistent with gerontological and chronic disease

prevention and management best practices [4], it was necessary to have a better understanding of seniors' transition experiences.

The overall goals of this three-year study were to increase positive transition experiences for seniors and care partners; improve seniors' access to and continuity of care; and increase information availability during care transitions. Study Phase one, presented in this manuscript, focused on exploring seniors and care partners' care transition experiences.

## Background

Transitional care is often defined as the care provided when a patient is discharged from a specific care programme or location, or transferred from one care setting to another [5]. In reality however, discharge is not a single event; it is a stage in which health care professionals prepare a patient for relocation. Coleman defined transitional care as "*A set of actions designed to ensure the coordination and continuity of health care as patients transfer between different locations or different levels of care within the same location*" [2].

An economic trend to transfer patients rapidly from acute care to alternate levels of care requires all those involved to be informed about all aspects of the patient's care provision. As a result, policy makers have placed a strong emphasis on the transitioning process, and the preparation and education of patients and care partners [6].

Unfortunately, not all care transitions are supported by integrated care services. This lack of continuity can cause adverse outcomes, such as medication errors, infections, falls, or readmissions to acute care [6]. Seniors are at greater risk of experiencing poor transitional care because of frequent transfers, multiple co-morbidities, and a high number of health care professionals being involved in their care [7].

Research in this area is sparse. A systematic review of 17 studies on transitional care for dependent seniors discharged home from hospital found that most studies excluded patients who were frequently readmitted, such as those with dementia [8,9]. Seniors and care partners were not always involved in the transition and were left to their own devices to cope after the discharge had taken place [2]. Yet, most health care professionals did not consider discharge planning beyond their own care setting as part of their job [10]. Improving transitional care for seniors and care partners requires a good understanding of transition experiences, and facilitators of or obstacles to transitions.

## Methods

This study employed a qualitative design to explore the transition experiences of seniors and care partners. To address this objective, data was collected from two groups: seniors residing in the community and their care partners. Prior to commencement of the study, a Research Ethics Board approved the study to protect confidentiality and participant rights.

### Sample and recruitment

The sample was conveniently selected. Participants were invited from a local community by posting flyers in newspapers, community and senior centres, physicians' offices, home care agencies, hospitals, and retirement homes and communities (i.e., privately-owned residences that provide rental accommodation for seniors and makes at least two care services available). Investigators aimed to recruit 30 seniors who resided in the community; were 65 years of age or older; experienced one or more chronic conditions; had one or more healthcare transitions over the last 12 months; understood and spoke English; did not suffer from an acute medical condition or palliative illness; and had the cognitive ability to respond to questions as identified by scoring >2 on the Recall Score [11]. Investigators also aimed to recruit 15 care partners who resided in the community; provided care for a minimum of four hours a week to a senior; and understood and spoke English. Care partners were recruited in their own right. Interested seniors and care partners were invited to provide consent and participate in an individual semi-structured interview.

### Data generation

All interviews were semi-structured and conducted by one investigator (MB) with extensive expertise in interviewing. Questions prompted for reason(s) for transitioning, transition experiences, support received, and successes and deterrents of transitions. Based on

participants' responses, the interviewer probed to further elicit clear, in-depth responses.

### Data analysis

All interviews were transcribed verbatim. Identifying information was removed, and participants were assigned code numbers. Both investigators read the transcripts separately, using a situational analysis technique to identify phrases or concepts. This analysis aimed to understand a specific situation by exploring the social, cultural, and organizational context within which the phenomenon of interest was understood [12]. For this study, the analysis was organized under three main categories: transition experiences, factors that made transitions successful and factors that impeded transitions. Further analysis within each category produced key words and phrases indicative of factors influencing participants' perspectives. During team meetings, both investigators developed themes and subcategories, and compared data for similarities and differences.

## Results

### Demographic information

Twenty-six seniors and thirteen care partners were recruited. Seniors ranged in age from 65 to 70 years, equally balanced for gender. Seniors' number of transitions ranged from one to eight, with the majority reporting five or more within the last year. The majority of these transitions included home to hospital, hospital to retirement communities, or home with services. The seniors described their health as good or very good, yet reported at least two chronic conditions.

Care partners ranged in age from 60 to 70 years. The majority reporting seven or more transitions for the seniors they cared for. Most care partners described the seniors' health as good to excellent.

### Transitional care experiences

Before discussing the qualitative themes, some patterns that were presented should be highlighted. Seniors and care partners described coping with different health care needs. Care partners' challenges were often ongoing and of long duration (i.e., years). Several care partners were also care recipients. Lastly, while the themes are reported as discrete groups or concepts, data suggests that these themes are not simple lists of recommendations but complex factors at interplay with each other.

### Overview of themes

The analysis revealed several distinct themes (Table 1). Participants" feedback was categorized into six subthemes: Knowing what is needed and negotiating the health care professional's response; Being listened to (or not) when expressing care needs; Hoping for relational approaches as a framework for care; Experiencing the health care system as a limitation of care delivery; Recognizing chronic disease; and Understanding health care professionals' limited control. Care partners' experiences were grouped into the following subthemes: Dismissing partners in care; Care partners' health problems; and Financial and transportation barriers.

| Seniors | Care Partners |
|---|---|
| 1.  Knowing what is needed and negotiating the HCPs response | 1. Dismissing Partners in care |
| 2.  Being Listened to (or not) when Expressing Care Needs | 2. Coping with Caregiving |
| 3.  Hoping for Relational Approaches as a Framework for Care | 3. Managing Financial and Transportation Barriers |
| 4.  Experiencing the Health Care System as a Limitation of Care Delivery | |
| 5.  Recognizing Chronic Disease | |
| 6.  Understanding HCPs' Limited Control | |

**Table 1:** Overview of themes in care transition experiences.

The following are the themes identified in seniors' and the care partners' interviews through the analytical process.

### Theme 1: Knowing what is needed and negotiating the health care professional's response

This theme relates to seniors and care partners' clear articulation of their needs, and discussions had with health care professionals to convince them of those needs. During interviews, seniors and care partners described specific care issues they needed support with. Examples included physical care, depression, pain, and nutrition. Not only did seniors and care partners express their needs and the type of care or services they required, but the support they requested was often minimal. An older woman with Chronic Obstructive Pulmonary Disease (COPD) described her home situation, while caring for her husband who had experienced a stroke in the past year:

"*I phoned the [Home care Agency] and just checked if I could get some help with the vacuuming… [Husband] used to do this for me as with the COPD, I find it hard. So I phoned to just check to see… If I could get some vacuuming. Nope, I'm not the patient. If you weren't the patient and you're not able to do it…. Even if those were the things that [Husband] was doing previously*" (Senior-35/Care Partner-36).

It was difficult and, at times, frustrating for participants to understand why requests for minimal help were refused.

Another finding is related to seniors and care partners' ongoing needs. Many seniors lived for several years with a gradual decline of health, sometimes interjected with acute events. They described it as a process of "taking stock" and making decisions about help that would be needed in the near future. Therefore, by the time they reached out to an organization or health care professional for help, they knew exactly what type of services they needed to continue living with chronic disease.

An 87-year old widow described her future needs clearly:

"*All they have to do is either give me a bath or a shower, and make sure I get dressed. I prepare mostly on my own*" (Senior-3).

An 88-year old lady who cared for her 84-year old husband at home stated:

"*When the time comes, we will need some transportation, because of our age and also because my husband being the driver now, his time is limited. So I know there will be a need for transportation*" (Care Provider-11).

This care partner had carefully thought about the future, and knew exactly what services would be required to continue living at home.

When health care professionals entered this precarious balance, a negotiation took place between the different players. Seniors and/or care partners expressed what they needed to health care professionals and health care professionals provided a response, outlining the help they could, or, in some situations, could not, provide. Given seniors' well-articulated needs, one would assume that it would be rather straightforward for health care professionals to decide on what the priorities were in these situations. Yet, participants indicated that health care professionals were often not responsive to the articulated needs. Seniors and care partners talked at length about health care professionals' responses to their questions. These responses seemed to fall in one of the following three 'categories.'

The first category encompasses responses given by health care professionals that left seniors and/or care partners with the perception that the need was not recognized as a "real need" and was subsequently dismissed by the health care professional. This left the senior with a feeling of despair. This 82-year old woman lived independently, had several comorbidities, and was diagnosed with severe clinical depression. She described the response of a health care professional when asking for help with groceries:

"*I don't know what she was. I think she was a social worker. She gave me things that I could do to help myself. You know, "think positive" and I thought "For God's sake, lady, I've gone past that stage". I was in the depths, not talking to anybody, not leaving the house for weeks on end, crying if I met anybody, and you tell me just to pie it up [deal with it]?*" (Senior-4).

A dismissal of one's needs by a health care professional was perceived as disrespectful and left the senior feeling misunderstood.

A second category of responses given by a health care professional when confronted with a senior and/or care partner's appeal for support fell into the category of health care professionals ignoring the need and proceeding to identify another, different need. This left the person who reached out for help frustrated, as not only was the call for help not perceived as valid; the actual issue was not resolved. This negation was in addition to the seniors or care partner having to explain to the health care professional that the other issue was well known and managed and not a priority at this time. This 81-year old husband, caring for his spouse with severe Alzheimer's disease at home, described this situation:

"*She fell on her shoulder and she was really hurting…the ambulance came and took her away… I'm not allowed to go with her. So 8.30 pm, I phoned and got the doctor [ER] and he said: 'Come and get her, we can't do anything for her.' I said: 'What's going on?' 'Well,' he said, 'She doesn't know where she lives and she doesn't know what year it is.' I said, 'Well, what the hell does that have to do with pain?' He said, 'we can't do anything for her, she needs to get assessed for dementia, come and get her.' If I would have seen that doctor that day I would have punched him. I was so mad. So I drove to the ER and got her in my car…and I brought her home and I was taking Tylenol for something so I gave her Tylenol. She was in so much pain and her shoulder were swollen and blue*" (Care Provider-26).

This man was confronted by health care professionals who did not recognize that his wife was in pain; the health care professionals informed him of his wife's confusion and need for a cognitive assessment, while she had been diagnosed with Alzheimer's disease many years before. This care partner was angry that the health care professionals did not value his concerns.

Lastly, there is a third category to capture health care professionals' responses to an expressed need. This category consists of responses where the health care professional recognized the expressed need; yet no services were delivered due to system issues. These issues were related to the limited availability of services needed, or to a lack of communication between the different healthcare services and agencies. For example, an older man, caring for his spouse with Alzheimer's disease at home, described:

"*We encountered this a lot when [spouse] was slipping into severe anxiety and we were trying to find effective treatment. There was a case where the doctor referred us to [named local service]. We heard nothing for weeks. When we went back to the doctor, she said "Oh, they said [spouse] was too far gone for them to effectively intervene so they bounced it back to me". Well, nobody told us that. … By the time we actually got an appointment, [spouse] had been to the ER twice*" (Care Provider-31).

In this situation, lack of communication with the care partner led to a concerning delay in services.

Overall, this first theme demonstrated seniors' and care partners' strength in articulating needs and defining priority concerns they needed support with. Most care needs were the result of the seniors' decline because of chronic illness (es), so regular home-care support could be coordinated. Despite the clearly voiced needs, seniors and care partners described their requests as being ignored or not responded to. In some situations, care was delayed or withheld, or seniors and care partners received an inappropriate service.

### Theme 2: Being listened to (or not) when expressing care needs

An overarching theme that emerged as seniors and care partners' described transition experiences was the perception of not being listened to. This theme has several subcategories.

**Feeling ignored by health care professionals:** Seniors and care partners described their experiences with health care professionals not listening to their experiences and symptoms, and how this made them feel. Seniors and care partners expressed feelings of sadness, rejection, frustration, and anger. A 78-year old woman described the experience of being ignored in a hospital, caring for her husband who suffered a major stroke that ended with his passing:

"*Sometimes, you felt unimportant, you felt like you were just another body… You weren't at the head of the list of urgency today. There was times you felt really unimportant and there is always people worse off than you, for sure. But still, you should not be made to feel that way. You don't like to feel you are another number in the system*" (Care Provider-35).

Although this experience had occurred several months before, the participant was emotional in recounting this story. She did not to understand why health care professionals would not acknowledge her.

Participants also talked about not feeling listened to when trying to explain a specific issue to a health care professional. Seniors and care partners know their health status well and because of their familiarity with the chronic illness, were able to pinpoint a problem or single out a changing symptom. When the senior and/or the care partners decided to explain the situation to the health care professional, they hoped for a response demonstrating an acknowledgment and understanding of the issue. However, several participants described how health care professionals did not take the time to listen when they talked about a symptom or worsening situation.

### One participant describes this:

"*I was breathless. And I was puffing and panting and thought: "I don't know what this is." And I could not sleep at all. I was sitting up and I thought I better go and see someone. And our doctor has a complicated set-up. You can phone to set up an appointment but you can never get through. So, I went to the hospital and they had me do all kind of tests and then they sent me home. And I sat in that chair all night because I could not lie down to sleep. I knew something was wrong… and the respirologist said [4 weeks later]: "You have asthma," so he got me on inhalers and it is better now. But I wasn't impressed with being sent home. I'm 80-something, and I live alone, and I really thought I was going to die. It was scary*" (Senior-4).

This participant knew something was not right, yet, in her opinion, she received inadequate care and support.

**Knowing that more things will go wrong when not being listened to:** At times, not being listened to generated negative consequences for seniors. These situations started out with seniors and care partners informing the health care professionals about a symptom or changed situation. Some health care professionals did not pick up on these changes or deemed the changes irrelevant so did not intervene. As a result, seniors and care partners felt obligated to repeatedly explain how that a small change could lead to an escalation and affect their quality of life. These explanations were received with mixed feelings by the health care professionals; some seemed to realize it was important to listen, others did not.

A senior described a situation where she had a fall 20 years ago in which she fractured her knee. At the time, surgery was performed and the senior had since managed well. Unfortunately, in the last year, she started to experience severe discomfort in this knee:

"*How can you tell a surgeon, you know, like I'm falling all the time. My knee is buckling all the time, and him pointing to a picture of the X-ray and saying "Well, look, everything is where it should be". Well, if everything is where it should be, what is causing the buckling? Obviously something is not right. That's when he should have said "Let's find out what the problem is". See what I'm saying? It was like a nightmare for years. Every time I fell I hurt myself*" (Senior-6).

When health care professionals do not listen to a senior describing a change, their situation might worsen and create excess disability, requiring far more complex intervention down the line.

A 77-year old lady described a situation in which her older husband got sick at home:

"*He was so sick, my walls were full of faeces, and the floor, throwing up too. So we rushed him by ambulance to the ER. We went to the ER and the nurse said he's got food poisoning. I said "Well, how do you know? You did not test him for nothing?" The doctor said "Its food poisoning." And I said that I hate to see him sick like that. And you know what he [ER doctor], told me, "You married him"… Anyway, it was the wrong diagnosis; I took him back home and he ended up having a gall bladder infection and stones*" (Care Provider-17).

This quote indicates that the health care professional discredited information presented and neglected to listen to the care partner's perspective. The health care professional consequently failed to recognize a more serious situation.

**Seeking help elsewhere when health care professionals and the system fail to help:** As a response to health care professionals ignoring needs during transitions, seniors and care partners have found creative ways to receive help somewhere else. Some rely on strangers to help them out. This care partner described her four-month struggle to find someone to put on her husband's elastic stockings after they had transitioned into a retirement community:

"*The home care agency told me they don't do things like that. And then the lady that cleans the building; she was such a kind lady, and we were telling her about the stockings and … she says "I'll put your stocking on." And in a matter of minutes. And she came in every day. And she did not want to take money, but we insisted she did. But she'd come in every morning. She was so kind*" (Care Provider-1).

As one might suspect, there were situations in which unsuspecting seniors and care partners were sometimes taken advantage of when seeking help. One care partner described her husband being discharged from the ER:

"*I said to the nurse, "I have a problem trying to get him [husband] back in the car." And she [ER nurse] said "I can't help you, but we have a list of services who can provide transportation". The first one I called would take five hours to get there. So the second one I called said "Well, we can be there in about an hour and a half" And I thought "Well, that is a little better". And he said it would be expensive, and I said "Like, how much"? And he said: $500." We live 14 km from the hospital. So, I said, I think not". So I called the caregiver [Paid care partner by a home care agency], who was on duty that day anyway, and she lived in the area, and I asked if she could meet me at the ER. I am not supposed to ask her. But she helped me get him in the car*" (Care Provider-2).

This care partner encountered a situation she needed help with. Some agencies charge large amounts of money to help out when the health care system fails to provide services.

### Theme 3: Hoping for relational approaches as a framework for care

A third theme in this analysis captures seniors and care partners' perception that, overall, health care professionals and the system did not really know how to respond to seniors' needs. There was a variety of reasons for not responding to care needs (e.g., not listening and identifying other needs), but once there was a commitment to provide services, several care partners felt that health care professionals did not understand that the approach to providing support was of utmost importance.

An example of this was provided by a daughter, caring for her mother with Alzheimer's disease at home. The daughter asked for help to provide a weekly bath to her mother. For a couple weeks, the health care professional attending the home, asked the mother one question upon arriving: "*Would you like to take a bath?*" The mother refused every time and the health care professional interpreted this response as a 'non-compliant' situation. Homecare services were withdrawn. During the interview, the daughter talked about the health care professional failing to recognize that her mother needed to feel at ease first, before the topic of a bath was brought up. This health care professional did not engage at a relational level with her mother, causing anxiety and confusion. As a result, the daughter did not receive the support she needed to keep her mother at home. Providing care and support to seniors and care partners at home requires a trusting relationship. Health care professionals can strengthen this relationship by demonstrating relational practices and building continuity of care. Some care partners had the impression that health care professionals were not interested in the relational aspect of care, which made it difficult to build a trusting relationship between seniors and health care professionals. This in turn had a negative impact on seniors' overall care.

An example of this was provided by a son who, joined by his family, provided over 20 years of homecare to both his parents. The father was in his 80's with Alzheimer's disease and the mother had suffered a stroke a couple of years earlier. Both parents were very private. The son stated:

"*We are a very committed family and we are very involved in the care of our parents. And there are good nurses and support workers out there that could become acquainted with mom and dad and who get to know them and are willing to work with them. And when they ask to do something – if dad sometimes says "No, I don't want my meds, I don't want to do it," then they are patient and kind, chat for a little bit, and try again… But my frustration is that every day there was a different person. I was ending up having to wait each time to make sure they understood what was going to happen. I had to wait for them because I have to make sure mom and dad are ok with them coming in, to make sure they clicked, and then I left for work. So, if there are 10-12 people that were coming in, never basically in a row…, give me 3 or 4 people instead. If they provided more consistency, they could have connected with mom and dad*" (Care Provider-9).

The above quote demonstrates a disregard for the importance of relational care and continuity, both from a system and individual health care professional level. Seniors with cognitive impairment require services within a relational framework, provided by consistent health care professionals who know the person well. The parents in the aforementioned story needed committed health care professionals who knew their personalities and routines, and therefore understood how to respond to their care needs. When several different health care professionals enter the house, seniors will experience anxiety and unmet needs. Some of these situations can even lead to preventable admissions to long-term care (LTC), as was the case in the aforementioned story.

### Theme 4: Experiencing the health care system as a limitation of care delivery

A fourth theme relates to health care professionals' limited inability to provide care due to system barriers and limitations. Seniors and care

partners described a health care system that limits care delivery to certain locations, and has a lot of rules to provide (or withhold) care, system issues, and guidelines and policies. Seniors and care partners believe that the health care system is well-designed, and some rules and guidelines are needed to regulate when and to whom care is provided. Most participants recounting positive stories receiving care for one specific issue. However, when confronted with multiple needs and chronicity, the system acted as a barrier.

Countless examples were given to validate this issue; we will describe some to demonstrate the rigidity of the system resulting in the inability to provide services.

### This senior talks about seeking help with nail care:

"*The [home care agency] won't cut your fingernails or toenails, you have to go to [named facility]… It costs $40 each time you go. And if you don't have transportation to go there, well… So who is to cut people's fingernails if you don't have family? It has nothing to do with being able to walk again, but the [home care agency] lady said when she first came here "Oh, we are not allowed to do this". Well, what am I going to do?*" (Senior-28).

This example describes a system that is not designed to respond to seniors with multiple needs, within the context of limited support and resources. An older woman described her experience of finding an appropriate wheelchair to help transport her husband from an acute care facility to their home. The therapist was unable to provide a wheelchair on the day of discharge, causing the discharge to be delayed twice.

"*So at this point in time, [husband] was so desperate to go home… and he asked the therapist: 'Why can't you loan me this wheelchair, the one I'm sitting in now?' He was the only guy in there that was that size. 'Why can't you loan me this wheelchair till tomorrow morning? My wife will bring it back.' And she [therapist] said: 'We can't do that. I cannot let this wheelchair go.' Then he [husband] said: 'Well, you let me go home in this wheelchair for a home visit [previous week].' So I [wife] said: 'What if this new wheelchair can't come now?' She [therapist] said: 'Then, he doesn't go home.' And [husband] said: 'What if I give you a $1000 dollars for that wheelchair?' It was a manual old wheelchair and I'm not kidding. A donation to the hospital just to get him home. 'No,' she [therapist] said, 'We don't do that.' They wouldn't even consider it. I started to cry and [husband] started to cry too and he said: 'I'm going to die here.' And then I cried even harder*" (Senior-7/ Care Provider-8).

The rules of this hospital allowed the man to use this wheelchair to be transported home for a weekend visit, but did not allow the use of that same wheelchair to support the discharge transportation. This story is an unfortunate example of care dictated by a rigid system.

Rules and regulations are sometimes difficult to understand or justify for seniors and care partners, considering the negative effect they have on the quality of life of those the system is designed for. This son described the tremendous difficulty in getting home care:

"*She [mother] had a very mild stroke. She was in the hospital for maybe 6 weeks, but they were anxious to get her home. I guess, that's where I was asking for help and that was sort of the beginning of the frustration I had with the system. Because I had trouble meeting with the lady that's with [home care agency] in the hospital. We finally connected. I was asking for somebody for half a day, because I had mom and dad [both have Alzheimer's disease, mobility and vision problems] to look after, but they wanted to give me like half an hour a*

week for each. So I convinced them to give me an hour for both of them, so at least it was only one nurse coming in" (Care Provider-9).

In this story, the system was supportive in providing home care but its rules dictated that each one of the parents was to receive care from a separate health care professional, resulting in two different health care professionals coming to the home. The care partner needed to negotiate that one health care professional care for both parents so that care continuity was somewhat protected. Several participants described the altogether lack of health care services because of system barriers and poor communication between service providers. An older woman had been admitted to an urban acute care facility for elective surgery and suffered a stroke post-operative. She was transferred to a rehabilitation facility in that same city and the time for her discharge had come. The woman described how she was discharged to her home while unable to mobilize, toilet, or prepare food independently.

"*After 2 months in [large rehab facility], you can't stay any longer, so they ship you home. But before they ship you home, they want to have somebody out here that's going to take over and look after you. They couldn't find anyone. So, I came home with nothing. I called several agencies. But I could not get anyone; they did not service this area. After 6 weeks, I found someone from [home care agency] who came and gave me a shower. My first shower after getting home. And they did that for once a week for 10 weeks. But after 10 weeks, I was on my own again. I can't even walk or open a door*" (Senior-20).

Rules, regulations, and policies often form a deterrent to optimal transitional care. Seniors provided examples, such as being informed that electronic scooters were not allowed in a retirement community, and that some agencies charge up to $200 monthly to rent a wheelchair. An older care partner described her experience of moving to a retirement community to care for her ailing husband:

"*We rented a 2 bedroom apartment, it was very small and very expensive ($3,500 a month). And with that we could have 5 breakfasts a week and 8 dinners a month. Well, we are not loaded with money, but we thought maybe this is the best way. But the only door that opened automatically was the front door and we could not bring our scooters in. The doors were so heavy, it took all your strength to hold them open…and I could not do the laundry myself, so we traded in our dinners for having our laundry done. So we had that……. So, [husband] had been putting on his elastic stockings but, as he went on with his illness, he couldn't do it anymore. So they sent someone up in the morning and at night and charged us. After 3 weeks, we got a bill of $357.00 and that was before they put the taxes on. So we traded in our breakfast in to get the stockings on*" (Care Provider-1).

It was difficult for this care partner to understand how this retirement home rules lead to optimal care. Furthermore, some regulations and policies interfere with quality care, and can have serious consequences. One senior's story described several examples of how rules hinder care, and of how none of the health care professionals seemed to understand this:

"*I had a heart attack in February, and when I got to the hospital I got diagnosed immediately and put into ICU. I got excellent care. It was the time of Clostridium difficile [a hospital acquired infection] and they were checking and checking. They put me in isolation and then they discovered that I didn't have it, but they could not transfer me to [academic hospital in large city] because Monday was a holiday and they did not accept any out-of-town patients on that day. So they kept me here and the next morning they were going to take me, transfer me to [academic hospital] for the heart surgery. My minister came in to*

give me communion and they would not let her come in because of the isolation. I thought that a bit strange, but rules are rules, I guess. So then I was told that I would be leaving the hospital at 9 am and the ambulance took me up and we waited there [academic hospital] most of the day, but their shift was over before I could get admitted so we came home after being there all day and then another ambulance had to come and take me the next day*" (Senior-37).

This person was caught in a web of organizational policies, protocols and procedures, and it is not until the individual brings the entire story together that one begins to understand the negative impact of a rule-driven health care system.

### Theme 5: Recognizing chronic disease

A fifth theme that was apparent in most interviews was health care professionals' limited recognition of chronic disease, and the importance of its management to prevent further decline. Health care professionals responded well to acute exacerbations of a disease, often leading to a stay in acute care, but once the issue was dealt with, the senior was transferred or discharged without supports. This story relays the experience of an older woman who suffered a stroke. She provides examples of how health care professionals and the system failed to deal with her chronic care needs.

"*I had to call to organize and book the services and get information…. It would have been so helpful if there was somebody that could do some of that calling for me to find out about services. Have you ever tried to hold a phone and write with your left hand at the same time? I can't use my right hand anymore. The phone was falling and I'm trying to write with my left hand and you are not used to that? Even that alone is… physically impossible*" (Senior-20).

In this situation, health care professionals did not recognize the chronic nature of suffering a stroke. This person needed help with setting up the support services once she transitioned home.

### Another woman described her older husbands' situation when he had a stroke:

"*At 11 am, the ambulance came and we went to [large community hospital] and they said it would be at least 48 hours before they really knew what was happening. So we waited, and that evening, 5pm, they transferred him to [community hospital, closer home]. And there we sat for a few hours in ER again. And I guess they did not know what to say, as no one had done any test yet. So that night at 10 pm, he gets admitted to a medical floor. And in the morning, a doctor passes by and says: 'He is going to go to rehab.' So he went down to rehab. And no one had done any test or assessments and he still had not come out of bed or walked. I stayed with him till 11 pm. And sometimes early in the morning, he wanted to go to the bathroom and no-one was there and he had this really bad fall and he had another bleed in his head*" (Care Provider-35).

This description is an ill-fated example of a health care system and health care professionals failing to recognize the consequences of a traumatic event when one has multiple instabilities. The transfers between different wards and hospitals probably led to delayed information sharing, risks for further deterioration and decline, not recognizing the trajectory of chronic disease and the complexity that comes with this leads to negative outcomes.

Other participants provided stories of health care professionals ignoring dying and death during transitions. Care partners do not always know they have decision-making power over some transitions

and they assume that loved ones will be well taken care of. However, some health care professionals do not recognize symptoms of rapid decline or impending death, resulting in unnecessary transitions at a time when palliation and comfort care should be a priority. This lady recounted the story of her husband's journey:

"*It was getting more and more difficult to get [husband] out of his chair at home, and then it got to a stage where he just could not walk, and I could not help him up. He was a big man, you know. And I could not do it, so I decided he better go into the hospital, and he never came out, that was it. They had been discussing that they would send him home. But the day he was going to come home, they phoned me and said that he was too ill. 'We just moved him to an inside ward and then tomorrow you can visit.' So I stayed the night [at home], and I said I wanted to stay with him [in the hospital], and that is the night he passed… And I felt guilty, I felt guilty because I couldn't do more for him*" (Care Provider-2).

The decision to first discharge this man home, and then change the plan to transfer him to another 'inside' unit on the day of his passing suggested little recognition of his impending death. Health care professionals often focus on more immediate situations, and this perspective does not allow recognition of chronic disease progression or the need for palliation. Not only was the wife ignored as an involved decision maker, but she was denied the opportunity to be with her husband at the time of his passing.

### Theme 6: Understanding health care professionals' limited control

Despite these disappointing stories, seniors and care partners trusted health care professionals unconditionally. Seniors and care partners believed that health care professionals acted in their best interest, and provided the right care. They also understood that health care professionals could not do more beyond what they already do. This older woman was in treatment for liver cancer and received chemotherapy. She talked about the gaps in the system and the health care professionals' care, but indicated an understanding of the health care professionals' constraints within the system:

"*So I was very, very sick, off to the ER I went. I waited 3 hours lying in a bed before seeing a doctor. The doctor said she was going to give me this antibiotic. This was now about 10 o'clock in the evening so the only place to fill it was [local pharmacy] so I went over there. The pharmacist said: 'Well, you are not [name on the prescription], are you? And you are not 13 years old, and you don't have a bladder infection?' And I went: 'No.' [local pharmacy] was very nice about it, they said I would have to go back to the hospital and get a different prescription. I said that they had to call them [ER] and find out. Anyway, they called them and finally the doctor [ER Dr] called back and [local pharmacy] was really fuming at this point because it was past closing time. The ER doctor said: 'Oh that is okay, it is the same antibiotic for her.' So when I got home, I went on the email and wrote a letter to the administration of the hospital. They phoned me the next morning and said: 'Can we send an ambulance out for you?' I said: 'No, I can drive in myself.' And I did. So they ended up taking really good care of me. But you know, a little too late*" (Care Provider-27).

The overall impression of stories where the health care system failed was that participants were hopeful. They held on to the belief that the system and the health care professionals were going to serve them well.

## Additional themes identified by care partners

In addition to the six themes identified from the interviews with seniors, three additional themes emerged for care partners.

### Theme 1: Dismissing partners in care

Care partners were not always invited to be involved in the decisions related to seniors' care. As a result, care partners were left feeling that their expertise and meaning was not valued. A care partner described her experiences with her ailing husband recurrently being admitted:

"*Sometimes, you had a transfer from the ER to the acute care. Usually when they said that; and that was in the middle of the night; they would say to me: 'You might as well go home*' (Care Provider-1).

This care partner felt dismissed and that her input was of no further value, so she was asked to leave.

**The same participant talked about a dismissal at the time of an ER transfer:**

"*One time, he had fallen, a glass had broken and he had cut himself, and there was blood all over the kitchen floor. And when the guys [Paramedics] came over, one of them said to me, he said: 'Wash that floor right away because if you don't, that blood will get in the grout and you'll never get it out.' But, you know, that puts extra pressure on you, and when I do things like that I wheeze really badly, and with the arthritis, I have to do a bit and sit, and do a bit and sit, and all I want to do is go to the hospital*' (Care Provider-1).

This care partner wanted to be involved in the care of her husband, but was not invited to do so. She did not feel acknowledged as a partner in care.

### Theme 2: Coping with caregiving

Care partners' emotional and physical health challenges were frequently discussed during the interviews. Care partners are often spouses of seniors, similar in age, and the care that seniors required at home added an emotional and physical strain. Some transitions were the result of the care partner's inability to continue care at home because no services were available. This woman talked about providing physical care as the 'lifter' when transferring her husband from the bed to the wheelchair, and vice versa:

"*I had to have physiotherapy …the soreness here in the left lower back. And I went to about 3 months of physio and the pain was unbelievable. And I'd be up every night moaning and groaning. So I said if I could just stop moving him and easing up on that, then it will start to go away. But it didn't*" (Care Provider-5).

Care partners tried to do the best they could, often with limited support or care equipment. This sometimes resulted in physical ailments, and in emotional stress and fatigue.

Another woman talked about the emotional strain of being a care partner for her 74-year old husband:

"*There is no break. My husband is a very private man and as his wife, the things that I have had to do… I'm sure if he was well, it would break his heart. I do get out twice a week for half an hour to get groceries. And once a week I go to the bank for 15 minutes. That's it. There's no help. I wish there was something more they could do for caregivers. I have a sister who just lost her husband a year ago. And she was doing exactly what I am doing, caregiver for 2 years. She said: 'Do you ever just all of a sudden stop and cry for no reason?' I said: 'Yeah, buckets*' (Care Provider-34).

This woman did not receive any services or support in her role as a care partner and the stress of the care giving role was concerning. Care partners wanted to provide care but with limited or no services available, it took a toll on their emotional and physical health.

### Theme 3: Managing financial and transportation barriers

The financial impact of caregiving should be underestimated. In each one of the interviews, care partners discussed the expenses and consequences of expenses incurred when providing care. This woman described caring for her husband at home:

"*How somebody with limited means can do any of this is totally beyond me. I ended up putting in a request against the insurance company for his care – so the first one that went in included some of his medical equipment, meds, and a month of caregiving. The bill came to something like $13,000. And I put it into the insurance company and oh, an age before I got an answer. Eventually they sent me a cheque for $200. So I thought: 'You missed a few zeros, or the period is in the wrong spot.' So I phoned them and they said: 'We do not provide the funds for this.' … I eventually got $6,000 of that $13,000 back with a letter saying this was a one-shot deal. So by the end, with close to 2-hour care per day, I needed $18,000 a month. And I did this for close to a year*" (Care Provider-5).

Many participants talked about financial pressures. Some participants did not have the resources to sustain caregiving at home.

## Discussion

This part of a larger study aimed to explore the transitional experiences of seniors and their care partners in the healthcare system. Individual interviews were held with seniors and care partners to discuss reason(s) for transitioning, transition experiences, support provided, and successes and deterrents of experienced transitions. Overall, this study revealed several factors that impeded successful transitions from seniors and care partners' perspective. The authors distilled the findings of the analysis into four categories.

First, care provided before, during, and after transitions was not always person-centred; nor was the care incorporating principles of gerontological best practices, chronic disease management or end-of life approaches [3]. Despite seniors and care partners articulating well-defined symptoms with a clear request for help, some health care professionals failed to listen to the expressed concerns. This finding is consistent with McCloskey who described that nurses perceive to have little time to discuss transitional planning in response to other work pressures [13]. Knowing that most of seniors' needs are not sudden, better planning for care delivery or transitions should be possible.

Moreover, several gaps in health care professionals' knowledge of gerontology, Chronic disease prevention and management, and palliative care hinder successful transitions [3,14,15]. Some health care professionals failed to notice important symptoms of decline or impeding death. Others did not consider practice strategies to prevent exacerbations of acute diseases, falls, functional decline, or requests for transportation. The emphasis on addressing the one important, often acute, issue at hand leads to ignoring other underlying complexities. These findings are conformed by large studies in the United States [16] and Europe [17].

Secondly, several gaps existed in access to and continuity of health care services for seniors, including limited communication about and with other available services. Seniors and care partners had great difficulty navigating the health care system on their own. They were not aware of services or agencies, or could not locate or contact them. When services were available, there seemed to be several challenges with the continuity of care or services provided. Naylor and Keating discussed gaps within homecare services and how gaps are compounded when important patient information does not transition with the senior from one care setting to another [10,18].

A last theme under this category is the lack of health care professionals' awareness of care partners' physical and emotional stress. The health care professionals are only focused on seniors' health issue (s) and as soon as that is dealt with, the care provider perceives their job to be done. This statement was sadly confirmed by the story of the older woman trying to get her husband in the car, in the ER parking lot. None of the staff provided any help but when asked, provided a list with phone numbers for the care partner to call.

Thirdly, findings suggested that seniors do not receive the resources required to support them through transitions and advocate for their needs. Help requested at home or during a transition does not always need to be extensive. The findings of this study provided an interesting dichotomy between the care and services that seniors indicated they needed to maintain their status and the system deciding what type of care and services would be offered. Often, the needs expressed by senior and/or care partners were not the ones that were addressed by the system, further devaluing the seniors and care partners' voice. Despite these stories, seniors tend to trust professional care providers. Both seniors and care partners hold hope that health care professionals know what is best, even if there are serious breakdowns in trust, competency and accountability [19].

Lastly, several policy and funding models have created barriers to care access and/or sustainability. Seniors and care partners are willing to promote their own health, and prefer to remain at home. In spite of that, requests to receive support at home are difficult to complete and not well-organized, often resulting in bigger challenges and relocation. This study provides substantiation to the idea that providing care and services to seniors and care partners does not outweigh the implications of not receiving services; a structured economic study is needed to provide additional data.

Overall, this study highlights the fact that transition is not a one-time experience for seniors and their care partners. Health care professionals need to be knowledgeable about the components of effective, person-centred transitional care. Communication between sending and receiving care organizations (e.g. sharing of care plans) is essential [2] for health care professionals, as well as care agencies' awareness and understanding of seniors and care partners' individual stories and care trajectories [20].

Several initiatives to enhance transitional care are underway. In particular, there is a focus on avoiding rehospitalisation and this has led to several discharge initiatives in acute care facilities improving transitions care [21,22]. New and stronger home-based primary care models are finding their way through the health care system, and aim to create smoother transitions between care facilities. New roles, such as discharge specialist, transition coaches and care coordinators, aim to improve quality and safety of care transitions [23]. Rigorous research is needed to evaluate the impact of these roles on the care experiences of seniors and their care partners.

## Conclusion and Practice Implications

There is significant room to improve seniors' care transitions in the Canadian health care system. Findings from this descriptive qualitative study indicate that transitional care is often not person-centred, not following best practices, and presents with several gaps in access to and the continuity of health care services. All participants had countless examples of the effect that poor transitional care has on their own and/or their care recipient's health and quality of life. Conclusions drawn from this study indicate that future research should also explore cultural, ethnical, and economic scopes to give a more in depth look at care transitions in the Canadian health care system for seniors. Findings of this study will inform subsequent stages of the project, aimed at creating better transitions and care experiences for seniors and their care partners.

## Acknowledgement

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