ISSN-0974-9349 (Print) • ISSN-0974-9357 (Electronic)

Volume 13 | Number 3 | July-September 2021

International Journal of Nursing Education

www.ijone.org

International Journal of Nursing Education

International Journal of Nursing Education

Editorial Board

Print-ISSN: 0974-9349, Electronic - ISSN: 0974-9357,
Frequency: Quarterly (Four issues in a year)
www.ijone.org

Editor

Dr. R.K. Sharma
Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall,
Sector- 32, Noida - 201 301 (Uttar Pradesh)

Printed, published and owned by

Dr. R.K. Sharma
Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall,
Sector- 32, Noida - 201 301 (Uttar Pradesh)

Published at

Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall,
Sector- 32, Noida - 201 301 (Uttar Pradesh)

International Journal of Nursing Education is an international peer reviewed journal. It publishes articles related to nursing and midwifery. The purpose of the journal is to bring advancement in nursing education. The journal publishes articles related to specialities of nursing education, care and practice. The journal has been assigned international standard serial numbers 0974-9349 (print) and 0974-9357 (electronic). The journal is covered by Index Copernicus, Poland and is included in many international databases. We have pleasure to inform you that IJONE is a double blind peer reviewed indexed international journal and is now covered by GOOGLE SCHOLAR and many other international databases.

International Journal of Nursing Education

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Volume 13, Number 3 **July-September 2021**

Effectiveness of Dual Task Exercise on Selected Parameters among Patients with Cerebro Vascular Accident

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Abstract

The Study was conducted to evaluate the effectiveness of dual task exercise on selected parameters among patients with Cerebro Vascular Accident. Quasi experimental, non-randomized control group design was utilized to perform the study with convenience sampling technique. Data were collected from the patient with Cerebro Vascular Accident who fulfilled the inclusion criteria through Tinetti Balance Assessment Tool and Walking speed test. The findings revealed that the unpaired't' test value for gait and balance was 20.123 and the walking speed was 28.09 which was significant at $p \leq 0.05$ and was highly significant at $p \leq 0.01$, $p \leq 0.001$. It showed that dual task exercise was effective in increasing the level of selected parameters (gait, balance and walking speed) among patients with Cerebro Vascular Accident.

Keywords: *Effectiveness, Dual Task Exercise, Parameters (Gait, Balance and walking speed), Cerebro Vascular Accident patients.*

Introduction

Cerebro Vascular Accident was the 12th leading cause of death and disability in 1990 with 2.2% and after 20 years of decade in 2016, Cerebro Vascular Accident is the 10th leading cause of death and disability with 2.8%.

Recently the total numbers of Cerebro Vascular Accident patients admitted in the hospitals are increased. Cerebro Vascular Accident is an indication that these patients need long term care, even after their discharge from the hospitals and the families have been forced to become caregivers and were not well prepared for the same.(4)

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The patients may have difficulties in maintaining the gait and balance and decreased walking speed. Dual task exercise may help the Cerebro Vascular Accident patients to improve their gait, balance and walking speed. (5)

The investigator during the clinical experience found that the patient with Cerebro Vascular Accident had imbalance in their gait, balance and walking speed. Exercise can improve the level of gait, balance and walking speed and the investigator also felt that Dual Task Exercise helps to improve the level of gait, balance and walking speed among patients with Cerebro Vascular Accident.(6)

Statement of the Problem

A Quasi Experimental Study to Evaluate the Effectiveness of Dual Task Exercise on Selected Parameters among Patients with Cerebro Vascular Accident in selected Hospitals at Kanyakumari District.

Objectives of the Study

1. To assess and compare the pre test and post

test level of selected parameters among patients with Cerebro Vascular Accident in study group and control group..

2. To evaluate the effectiveness of dual task exercise on level of selected parameters among patients with Cerebro Vascular Accident in study group and control group.

3. To find out the association between selected demographic variables among patients with Cerebro Vascular Accident with their pre test level of selected parameters in study group and control group.

4. To find out the association between selected clinical variables among patients with Cerebro Vascular Accident with their pre test level of selected parameters in study group and control group.

HYPOTHESES

H_1: There is a significant difference between pre test and post test level of selected parameters among patients with Cerebro Vascular Accident in study group and control group.

H_2: There is a significant difference between post test level of selected parameters among patients with Cerebro Vascular Accident in study group and control group.

Research Methodology

The researcher utilized quantitative research approach with Quasi experimental non randomized control group design. Convenience sampling technique was adopted for the study. The study was conducted at 2 hospitals in Kanyakumari District for the patient with Cerebro vascular accident undergoing physiotherapy between the age group of 41 - 70 years. Totally 30 patients in study group and 30 patients in control group were selected for this study.

The tool used in this study was Tinetti Balance Assessment Tool and Walking Speed Test through observational Checklist.

Method of data collection

Phase I Selection of patients with Cerebro Vascular Accident.

After obtaining formal permission from the Principal of St.Xavier's Catholic College of Nursing, Chunkankadai, Dr.P.Arumugam, Chairman of P.S. Medical Trust Hospital, Thalakulam and Dr.T.Muthu Rathnam, Managing Director of Muthu Neuro Centre, Chunkankadai participants were selected based on the criteria of sample selection. The researcher obtained the informed written consent from each patient with Cerebro Vascular Accident and proceeded with the data collection. Data on Demographic and Clinical Variables were collected through structured interview schedule.

Phase II Pre test

Tinetti Balance Assessment Tool (gait and balance) and Walking speed test was used to assess the level of selected parameters (gait, balance and walking speed).

Phase III Intervention

The researcher explained the importance of dual task exercise and demonstrated to the study group. All participants were verbally encouraged and motivated regarding the Dual Task Exercise (Walking with a cup filled with water).

Phase IV Post test

The post test was conducted on the following 4^{th} week with Tinetti Balance Assessment Tool and Walking speed test.

Result

Table 1: Comparison of mean, standard deviation and unpaired‘t’ test on post test level of risk of fall (gait and balance) among patients with Cerebro Vascular Accident in study group and control group.

N=60

Variables	Group	Mean	SD	Unpaired ‘t’ test
Level of risk of fall (gait and balance)	Study group (n=30)	25.46	0.81	20.123***
	Control group (n=30)	21.100	4.366	

Significant at *p≤0.05, **p≤0.01, ***p≤0.001

Table 2: Comparison of mean, standard deviation and unpaired‘t’ test on post test level of walking speed among patients with Cerebro Vascular Accident in study group and control group.

N=60

Variables	Group	Mean	SD	Unpaired ‘t’ test
Level of walking speed	Study group (n=30)	18.33	2.17	28.09***
	Control group (n=30)	34.26	3.16	

Significant at *p≤0.05, **p≤0.01, ***p≤0.001

Discussion

The study was conducted to evaluate the effectiveness of Dual task Exercise on level of selected parameters (gait, balance and walking speed) among patients with Cerebro Vascular Accident. The mean score on level of risk of fall (gait and balance) among patients with Cerebro Vascular Accident in study group 25.46 with the standard deviation 0.81. In control group, the mean score was 21.100 and the standard deviation was 4.366.The estimated unpaired‘t’ test value was 20.123*** which was significant at p≤0.05 and was highly significant at p≤0.01, p≤0.001. In study group, the mean score was 18.33 with the standard deviation 2.17.In control group, the mean score was 34.26 and the standard deviation was 3.16.The estimated unpaired ‘t’ test value was 28.09*** which was significant at p≤0.05 and was highly significant at p≤0.01, p≤0.001. It shows that dual task exercise was effective in increasing the level of selected parameters (gait, balance and walking speed) in study group among patients with Cerebro Vascular Accident.

Conclusion

The study concluded that the dual task exercise increases the level of selected parameters (gait, balance and walking speed) among patients with Cerebro Vascular Accident. Therefore the investigator felt that dual task exercise for Cerebro Vascular Accident patients was effective in improving the gait, balance and walking speed.

Acknowledgement: I wish to thank God Almighty for all blessings showered upon from the beginning till end of the research study. It is my privilege to express my sincere gratitude and heartfelt thanks to Dr.A.Reena Evency, Principal; Dr.G.Feby, Vice principal, Mrs.C.Margret Nisha, Professor; Mrs.D.Shiny Mary, Associate professor and Mrs.K.Hemalatha, Nursing tutor, in St. Xavier's Catholic College of Nursing for their encouragement, support, valuable suggestion and constant guidance of the study.

Conflict Interest: There is no conflict of interest

Source of Fund: Self

Ethical Clearance: The proposed study was conducted after the approval of the ethical committee of St. Xavier's Catholic College of Nursing, Chunkankadai. Formal permission was obtained from P.S. Medical Trust hospital in Thalakulam and Muthu Neuro care Centre in Chunkankadai. Written consent was obtained from each participant before starting the data collection. Assurance was given to the study participants regarding the confidentiality of the data collection.

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An Older Adults Perspective on the Impact of Spirituality Towards Pandemic COVID-19

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Abastract

Purpose: This research aims to understand the perceptions of impact of spirituality towards pandemic COVID-19 from the perspective of the older adults, explores the themes of such perception older adults regarding spirituality in the pandemic COVID-19. **Methods:** This research is based on qualitative research in a phenomenological methodology. The research participants included older adults aged 60-90 living at home in Malang, Jawa Timur Provinces, Indonesia. Data collection methodologies included in-depth interviews and observation of participants. The data were analyzed in the phenomenological methodology by Colaizzi. **Results:** As a result of the research, it was found that all significant statements about the Indonesian older adults perception of spirituality in the pandemic COVID-19 fell within 10 categories with 2 major themes and 3 minor themes. The 2 major themes were: The COVID-19 pandemic is coming to an end and Spiritual improvement of the older adults**. Conclusion:** This study provides factor –factor to use on foundation to achieve spiritual need of older adults in the pandemic COVID-19.

***Key Words**: Older Adults, Spiritual, Perception, Qualitative research*

Background

The influence of spirituality does not only affect the time of illness, but also affects the success, performance and quality of human life as well as the older adults. Spirituality is proven to be able to bring humans to success and make someone a powerful leader, fulfilling spirituality's needs is something that cannot be ignored. The need for spirituality has been shown to provide strength when facing threats or illnesses[1]. The relationship between spiritual awareness and emotional and mental health has a positive relationship, having spiritual or religious beliefs can help people to overcome and find meaning and gain peace of mind as they approach death [2]. Paying attention to the ultimately spiritual needs of the lives of both the healthy and the sick is fundamental to quality care[3]. A person with unmet spiritual needs is at increased risk of worse psychological outcomes, reduced quality of life, reduced spiritual peace, and an increased risk of depression. Spiritual needs are needs and hopes that lead to find meaning, purpose and value in their lives. such needs can be specifically religious[4] As upheld by Asian countries, especially in Indonesia, with the various beliefs of their people.

Indonesia is a nation that is plural in ethnicity, religion, race and class. This plurality has long been recognized by the founders of the nation and has become the hallmark of society in Indonesia. The main precept in the State of Indonesia is "God Almighty", this shows that spirituality is part of the Indonesian ideology. The influence of traditional beliefs and local religions such as Hinduism, Buddhism, Islam, Christianity and Confucianism has in itself formed a unique concept of God (Yakino, Saudah, & W, 2019). Especially in the midst of the COVID-19 pandemic, the Godhead embraces all layers and groups, unites differences, strives together to support the PSBB (Large-Scale

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Social Restrictions) in order to break the chain of transmission. That is maturity and maturity in religious life, prioritizing active tolerance. Resilience is needed both physically and mentally in facing the COVID-19 Pandemic, because of the huge impact that is felt both from an economic, social and spiritual perspective for the Indonesian people.

One of the policies issued was PMK No.9 of 2020 concerning Guidelines for Large-Scale Social Restrictions in Handling COVID-19[5] in CHAPTER III Implementation of Large-Scale Social Restrictions Article 13, namely restrictions on religious activities, carried out in the form of religious activities carried out at home and limited family attendance, keeping everyone at a distance. All places of worship must be closed to the public; The burial of people who died not because of COVID-19 with the number present of not more than twenty people can be permitted by prioritizing efforts to prevent the spread of disease (breaking the chain of transmission). Existing policies and regulations limit the community in carrying out spiritual activities or worship. Nurse support is needed in dealing with the COVID-19 phenomenon, especially assessing the spiritual needs of the community.

The role of nurse in providing holistic care for the older adults, namely bio-psycho-socio-social and spiritual. Meeting the spiritual needs of the older adults can improve coping in dealing with difficult or challenging situations[6]. Especially during the COVID-19 pandemic the older adultsfear of death is increasing due to contracting COVID-19, in this situation significant psychological adjustments must be made and using spiritual activities will be a very important part of coping. Spiritual care is an important part in the midst of a pandemic, serious or life-threatening illness, and especially the older adults who are at home who experience limited spiritual activities [7]. But before that nurses must first understand how the spiritual needs of the older adults in the midst of the COVID-19 pandemic are described, so that they can plan and provide proper spiritual care[8]. A person who is spiritually intelligent is not only intelligent in terms of knowledge, but also has a high level of awareness about spirituality, so that it can make nurses more sensitive, reactive and responsive to the meaning and experiences of his life, and thus nurses tend to find it easier to have a positive attitude towards provision of spiritual care for the older adults [1]. Nurses who nurture their spirituality can find internal resources for caring through inner comfort, are more sensitive to the spiritual needs of the older adults, and have more effective coping with the stresses faced in providing nursing care [9].

Material and Methods

Research Design

This research uses a research design in the form of a phenomenological study to explore the description of the spiritual needs of the older adults during the COVID-19 pandemic. The meaning explored in this research is about feelings, readiness, hope, and challenges experienced by participants in meeting the spiritual needs of participants during this pandemic.

Participants

Participants in this study were older adults people who experienced obstacles in fulfilling spiritual needs during the COVID-19 epidemic. The research inclusion criteria were as follows:

1. Older adults age above 60 years (proven by age on ID card)
2. There is no decline in cognitive function
3. Domiciled in Malang Raya (Malang city, Batu City, and Malang Regency)
4. Having difficulties and obstacles in fulfilling spiritual needs during the COVID-19 pandemic
5. Willing to be a participant (proven by filling in the informed consent)
6. Able to communicate well

Data collection

1. Preparation

In the preparation stage, it is carried out by arranging research permits. This management is carried out at the research department of STIKesPantiWaluya Malang.

The arrangement of the correspondence includes a research permit letter and a cover letter to the research-related institution to be addressed.

2. Implementation

Researchers contact research participants and develop a trusting relationship between respondents and researchers. After a trusting relationship was established between the respondent and the researcher, the researcher entered into a contract to conduct in-depth interviews. These in-depth interviews can be carried out via long distance (Video Call) or through face-to-face meetings with due observance of health protocols during COVID-19. All conversations are recorded next and all conversations are written down. Data analysis was carried out to obtain meaning in this study.

Findings

Participants characteristic

This study involved 10 elderly consisting of 5 men and 5 women. The six elderly were aged between 60 to 70 years and two were aged 70 to 80 years and two were older than 80 years. The last education of the elderly is a senior high school and six elderly are highly educated. Marital status with six elderly married and three widows and one unmarried. The five elderly are Christian, four categories and one Muslim.

Description of the Theme

The experience of the older adults in fulfilling their spiritual needs during the COVID-19 pandemic in Malang was obtained through explorations conducted by researchers on participants using in-depth interviews. In-depth interviews were conducted with all ten participants. The length of the interview for each participant ranged from 35-45 minutes according to the agreement at the beginning of the interview. There are two themes resulting from this study, where the analysis process uses thematic analysis by Stevens, Bordui and Weyde (1999). The results of the interpretation are obtained in the form of participant keywords that are collected and have the same meaning, then they are grouped into categories. The categories are grouped into sub themes which then develop sub themes. The two themes generated in this study describe the meaning of the older adults in fulfilling spiritual needs during the COVID-19 pandemic in Malang: 1.The COVID-19 pandemic is coming to an end; 2. Spiritual advancement of the older adults.

1st Theme: The COVID-19 pandemic is coming to an end

In the spiritual assessment of the elderly during the COVID-19 pandemic, the first theme was found, namely the COVID-19 pandemic is coming to an end. This theme consists of one sub-themes, namely (1) The COVID-19 Pandemic is over.

Sub-theme: The COVID-19 Pandemic is over

The COVID-19 pandemic has a major impact on the joints of life, starting from the economy, education, society, national security and security. Likewise in psychosocial life, building spiritual relationships is an important point in surviving the COVID-19 pandemic. In this theme, it consists of one sub-theme, namely the end of the COVID-19 pandemic. This was as conveyed by the fourth participant as follows: *"The hope is to quickly get rid of covid'19 so that worship will run smoothly, work will run smoothly, everything will run smoothly"*

With the direct restrictions on worship, the personal relationship between the older adults and God is more well-established. This is evidenced by the increase in the frequency of worship by the participants as follows: *"Pray so that it will disappear quickly. Then we can reunite with friends "*

2th Theme: Spiritual Improvement of the older adults

In the spiritual assessment of the elderly during the COVID-19 pandemic, the second theme was found, namely the spiritual improvement of the elderly. This theme consists of two sub-themes, namely (1) increased prayer frequency and (2) closer to God.

Sub-theme: Increasing frequency of prayer

The elderly participants experienced an increased frequency of prayer. The elderly are more surrendered to

God with an increasing amount of time to pray. Elderly people ask God more like and increase the frequency of the following prayers:

"For a difference, personal prayer, maybe during a pandemic, ask God to get rid of the Covid-19 more, that's the prayer" (p1)

"If that night the midnight prayer, at 1 o'clock wake up midnight at a friend's house, then at 9 o'clock the prayer ... dhuhur prayer" (p2)

Participants also pray to God to be given health and spend more time praying as follows

"I pray that we are the same, because we ask God for the most effective medicine" (P6)

"Sometimes I lock the door, sis. Honestly, I usually like soap operas, it usually ends at 11 o'clock so I pray around 11 to 12 ... "(P8)

Sub-theme: Getting closer to God

Increasing the frequency of prayers that the participants have can directly or indirectly draw closer to God. The closeness of oneself to God is evidenced by the prayers the elderly have for a long and healthy life, as follows:

"Well, I just praise it to be healthy, live long, that's how it is .." (p8)

In addition, elderly participants can increase their closeness to God both physically and mentally as follows:

"After the situation is like this we are getting closer to God .." (p9)

"Mind is getting closer to God ..." (P8)

Proximity to God is also proven by always praising God and having thoughts of repenting in getting closer to God as stated in the following terms:

"Sinners we must repent to God the longer we must be closer to God" (P5)

"To praise and glorify the name of God .." (P4)

The closeness to God is also through the act of always praying diligently because the elderly realize that they have a high risk, such as the following:

"I am expected to pray diligently at home because I am a group rather than what it is 1. High risk 2. Susceptible to disease ..." (P3)

Discussion

The older adults have unique respond of spirituality in the pandemic COVID-19. The spiritual activity of older adults that have to stop during pandemic COVID-19 such as praying together in the church or mosque, religion gathering and practicing choir together in the church, this situation made older adults have to cope and develop to achieve the spiritual need in many ways. The big hope from the older adults was the pandemic COVID-19 is coming to an end, because the need to have connection between people in one religion becoming important support system for older adults. Spiritual development is seen as a lifelong process which leads the older adults towards emotional fulfillment[11]

Spiritual care for the older adults is very important, because it can directly or indirectly affect the elderly physically and mentally[12]. The spirituality of the elderly is also very important in the level of health of the elderly themselves[13]. Because the spirituality of the elderly is very important, so that the spirituality of the elderly can be directly or not directly can affect the health of the elderly.

An increased level of spirituality can be seen from the increased prayer frequency. In this research, it is shown that the increasing frequency of prayer is experienced by the elderly. This increase in prayer frequency is evidenced by more time to pray to God. Apart from that, increasing the time for worship such as "prayer" and trying to be more intimate in worship. Worship according to his beliefs such as prayer can support the health of the elderly. Nurses can have a more vital role in supporting their spiritual side and based on the customs and customs of each elderly person. On the other hand praying also has benefits in the cognitive rehabilitative of the elderly [14]. Increasing the frequency of prayers the elderly have can reduce stress levels and

can improve the bad effects experienced due to stress [15]. Even when worshiping, the elderly worship more at home because of the high risk of praying together during the COVID-19 pandemic[16].

Getting closer to God is one form of increasing the spirituality of the elderly. Bringing himself closer to God is done because he thinks he will be given health and a long life. With the COVID-19 pandemic, the spiritual growth of the elderly has also increased, older adultsis getting closer to God and has the desire to repent. The elderly also took advantage of the pandemic by praising God and worshiping a lot[17].This perception of getting closer to God has a positive impact on the elderly, such as cognitive improvement [14]. Not only that, the benefits of prayer and getting closer to God can provide good coping for the elderly in facing stressors from the COVID-192.4 pandemic.

Relation between these two themes *a) The COVID-19 pandemic is coming to an end*and *(b) Spiritual improvement of the older adults* was showing activity changes for older adults. The COVID-19 pandemic becoming the impulsion for older adults to more increasing praying to God related to the religion. Through the closer to God made the older adults feel free from fear and anxiety to get infected COVID-19 and made feel more safe.

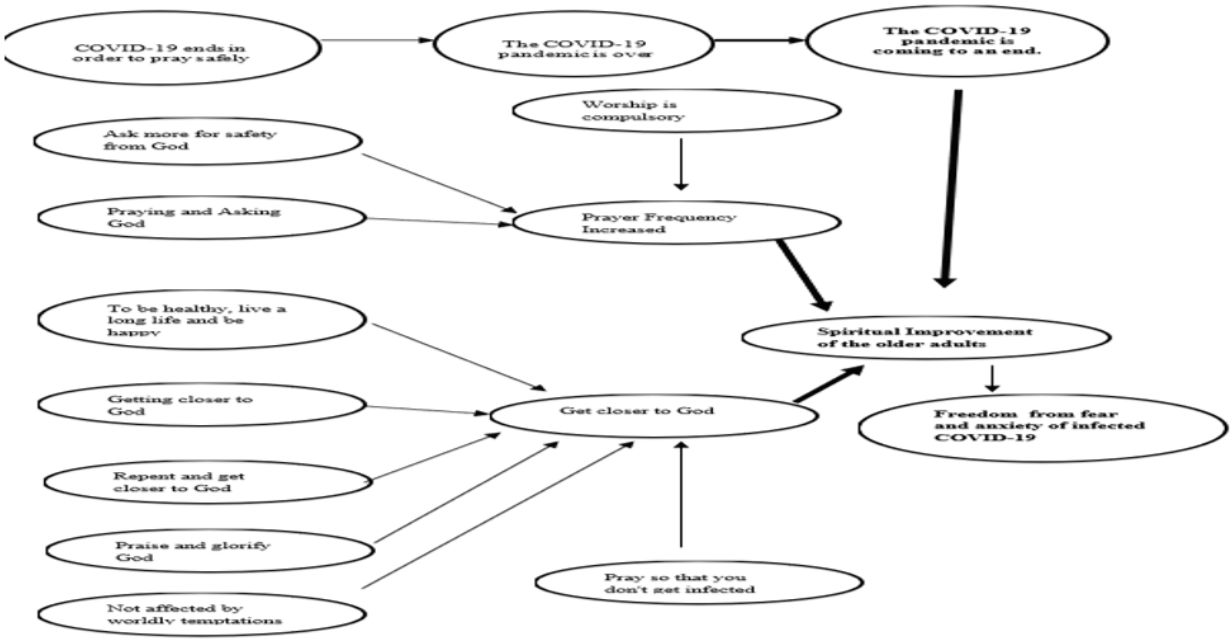

Figure 1

Conclusion

In general, it can be concluded that the characteristics of the elderly based on interview data obtained from 10 elderly with average age 60-80 years old are obtained 2 themes which were *(a) The COVID-19 pandemic is coming to an end* and *(b) Spiritual improvement of the older adults*. These themes explain the pattern in the spirituality standing that leads to pandemic COVID-19 adaptation or coping among older adults as evident in their interview results.

The study result showed rich data regarding spirituality especially religiosity among Indonesian older adults, however, the need for extensive qualitative research in a large number of older adults through life review may further validate the result in this study.

Ethical Clearance: Ethical clearance approval was carried out at the STIKES PantiWaluya Malang

institution of ethics on November 26, 2020 with number 70/784 / 407.229/ 2020.

Conflict of Interest : Nil

Source of Funding: This research has an internal funding source from STIKesPantiWaluya Malang.

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Effectiveness of Relaxation Therapy on Stress among Caregivers of Mentally Challenged Children in Selected Mentally Challenged Schools

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Abstract

Stress is an unpleasant emotion in the competitive environment. The quality of work depends on the conducive environment, workload, adequate communication, remuneration and psychological wellbeing. This study had assessed the Effectiveness of Relaxation therapy on stress among 75 caregivers of mentally challenged children. Quantitative research approach with pre experimental one group pre test post test design was adopted. Data collected through structured interview schedule using stress Assessment Scale. The findings revealed that there was a significant reduction of stress ($t=26.17$, $p<0.001$) and showed that relaxation therapy is effective in reducing stress.

Keywords**:** *Caregivers, Mentally Challenged Children, Relaxation therapy, Stress.*

Introduction

Care giving is a challenging complex health care activity and it is becoming as a major part of health care. Mentally challenged children have lack of intellectual potential, lag in mental capacities than other peers, slow to learn hence it is mandatory to have a caregiver throughout their lifetime.

The National Sample Survey Organisation 2017 stated the prevalence of Intellectual disability as 1-4% i.e. about 20 people per 1000 population. In India 84% of the caregivers are women and more than 96% of them are belonging to working age[2]. Caregivers help the mentally challenged children with everyday activities such as eating, dressing, bathing/toileting activities, during therapies and while taking medications.

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Caregivers invest their time, energy with highest degree of burden. The common difficulties they face are impaired memory, less attention, problem with making decision, solving problems, difficulties with finding words and weak civic behaviour. Caring a mentally challenged child is a physically and mentally tasking job.

Stress is a universal human experience with both pleasant and unpleasant happenings in the school environment. Caregivers working with mentally challenged children face various challenges in their personal and Occupational activities. The caregivers has to take care of all the physical needs of the mentally challenged children, keenly watch all the activities and keep an eye throughout the school environment because any child can do any kind of misbehaviour. This creates stressful situations for them.

A cross sectional study conducted on stress among the caregivers of mentally challenged children visiting a Rehabilitation centres in Chennai among 101 participants.64.3% had severe level of stress, 21.7% had a moderate level of stress and 13.8% had mild stress[3].

A study was conducted on effectiveness of stress management training on stress among 50 mothers of mentally challenged children through purposive sampling technique. Quasi experimental Non- randomised control design was adopted and 10 sessions of 60 minutes stress management training was given to the mothers after pre test. The findings revealed that there was significant difference in the pre test mean score of 25.29 and post test mean score of 14.38 with the mean difference 10.91. It was highly significant at $p<0.001$level and concluded that stress management is effective in improving the mental health, stress and social interaction among mothers of mentally challenged children[6].

Considering of all these stressful situations by a caregiver during the school working hours, the investigator had an impulse to assess the effectiveness of relaxation therapy among care givers of mentally challenged children to reduce stress by relaxing the whole body and mind.

Statement of the Problem

A Pre experimental Study to Evaluate the Effectiveness of Relaxation Therapy on Stress among Caregivers of Mentally Challenged Children in Selected Mentally Challenged Schools at Kanyakumari District, Tamilnadu.

Objectives

1. To assess the pre test and post test score on stress among caregivers of mentally challenged children.

2. To determine the effectiveness of relaxation therapy on stress among caregivers of mentally challenged children.

3. To find out the association between selected background variables among caregivers of mentally challenged children with their pre test score on stress.

Hypothesis

$\mathbf{H_{O1}}$ There is no significant difference between pre test and post test score on stress among caregivers of mentally challenged children.

Materials and Methods

Conceptual framework of this study was based on Betty Newman's system model. Quantitative research approach and pre experimental one group pre test post test design was adopted. After obtaining formal permission from the Differently Abled Welfare Officer and from the Principals of Mentally Challenged Schools, the study was conducted in 17 mentally Challenged schools. The accessible population was all the caregivers (76 caregivers) of mentally challenged children in the selected disabled schools. Caregivers were screened with the stress screening tool through structured interview schedule and the care givers belonged to mild, moderate and severe stress were selected for the study using purposive sampling technique. So one drop out (1% attrition) during the data collection process and the sample the size of the study was 75. Background variables such as Personal, Occupational and Clinical variables were collected through structured interview schedule. Pre test was done using Stress Assessment Scale through structured interview schedule.30 minutes was spend to fill the tool. Followed by that Relaxation therapy was taught in five sessions with one hour duration for each session and it was performed for 30 minutes through Breathing techniques for 10 minutes, muscle relaxation through Progressive Muscle Relaxation for 10 minutes and mental relaxation through mindfulness meditation for 10 minutes and made all the teachers to perform for 15 working days in front of the investigator. Finally an information booklet was issued to all the caregivers of mentally Challenged children.

Results and Discussion

Demographic Variables

The frequency and percentage distribution of personal variables among caregivers of mentally challenged children, majority 33 (44%) were aged between 41 – 50 years, 51 (68%) were females, 26 (35%) were literate, 56 (75%) were Christians, 44 (59%) were married and 68 (57%) belonged to Nuclear family.

The frequency and percentage distribution of Occupational variables among caregivers of mentally challenged children, majority 31(41%) had 6 – 10 years

of experience and 37 (50%) earning about Rs.3000 – Rs. 5000 as monthly salary respectively and 32 (43%) had worked 4 – 8 hours per day and 42(56%) cared 5 – 10 children.

The frequency and percentage distribution of Clinical variables among caregivers of mentally challenged children, majority 21 (28%) do not have any medical history and 18 (24%) and family medical history of Diabetes mellitus. In reproductive health history for females 15 (20%) had premenstrual symptoms. In males, 3 (4%) had the habit of Drinking alhohol and 2(3%) were tabocco chewers.

The first objective of the study is to assess the pre test and post test score on stress among Caregivers of mentally challenged children.

Assessment of Stress among Caregivers of Mentally Challenged Children in Selected Mentally Challenged Schools.

Table 1: Mean, standard deviation and percentage on overall pre test and post test score on stress among caregivers of mentally disabled children in selected mentally disabled schools.

N = 75

Stress	Mean	SD	Percentage
Pre test	198.56	40.16	50
Post test	103.18	36.28	26

The frequency and percentage distribution of the overall pre test score on stress among caregivers of mentally challenged children, 57% had mild stress, 43% had moderate stress and none of them had severe stress and no stress.

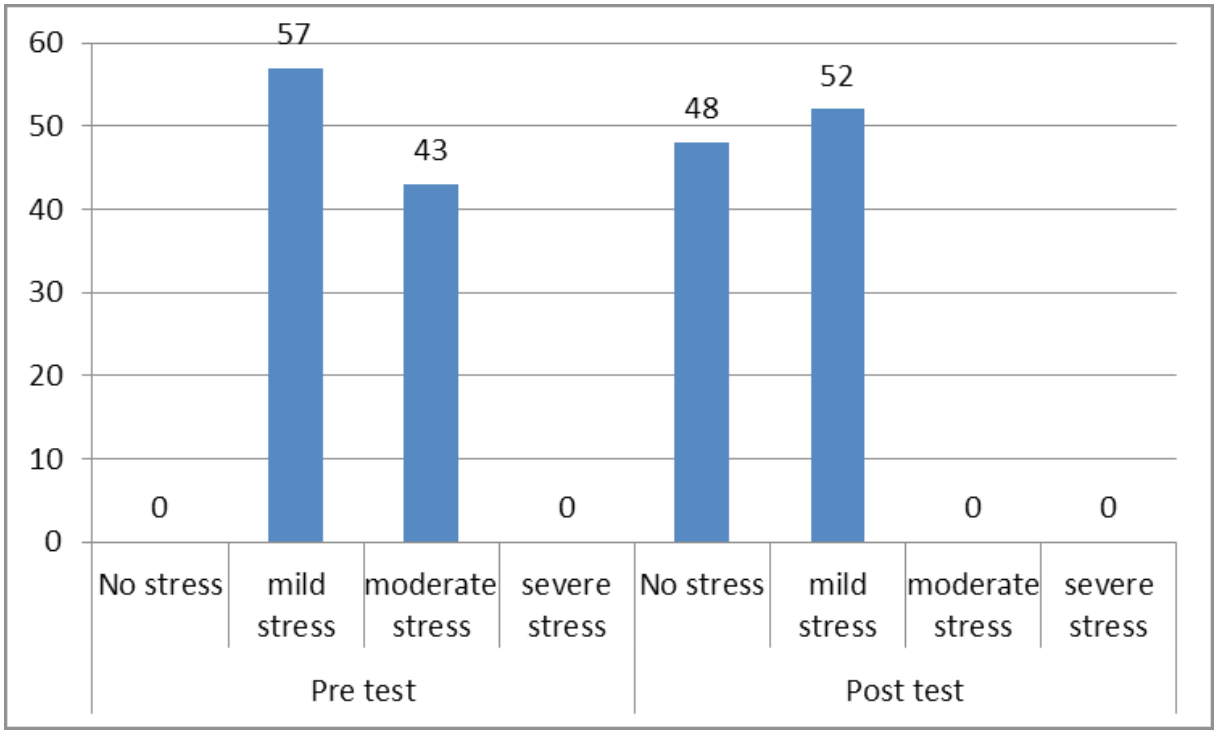

Figure 1: Bar diagram showing the pre test and post test score on stress among caregivers of mentally disabled children in selected mentally disabled schools.

The frequency and percentage distribution of the aspects of stress among caregivers of mentally challenged children in the pre test and post test, majority 40(53%) had mild Physical stress in both, 41 (55%) had mild Mental stress and 43 (57%) had no Mental stress, 48(64%) had mild Emotional stress and 38(51%) had no Emotional stress,49 (65%) had mild Social stress and 41 (55%) had mild Social stress, 39 (52%) had mild Cognitive stress and 45(60%) had mild Cognitive stress, 47(63%) had mild Behavioural stress and 38 (51%) had mild Behavioural stress,48(64%) had mild Environmental stress and 39(52%) had mild Environmental stress, 42(56%) had mild Occupational stress and 38(51%) had no Occupational stress respectively.

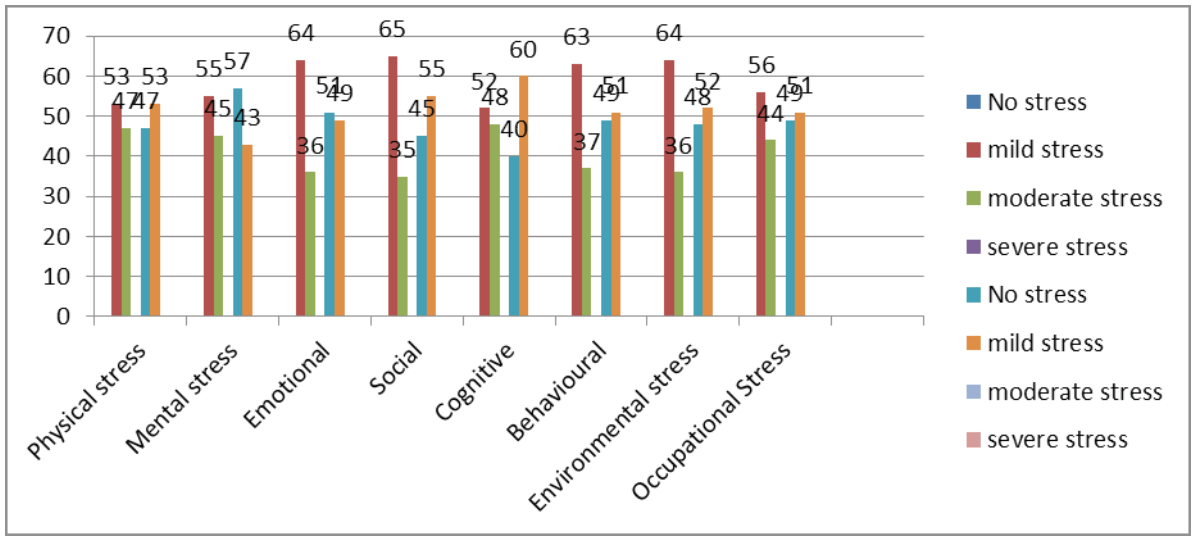

Figure 2: Grouped bar chart showing the comparison of the aspects of stress in pre test with the post test among caregivers of mentally disabled children in selected mentally disabled schools.

The second objective is to determine the effectiveness of relaxation therapy on stress among teachers of mentally challenged children. Effectiveness of Relaxation therapy on stress among caregivers of mentally challenged children.

Table 2: Mean, standard deviation, Mean difference and 't' value of pre test of post test score on aspects of stress

N=75

Sl. No	Aspects of stress	Mean	SD	Mean difference	't' value	Level of Significance
1	**Physical stress**					
	Pre test	25.33	8.92	13.00	12.68	.001
	Post test	12.33	4.36			
2	**Mental Stress**					
	Pre test	25.20	9.08	14.07	13.93	.001
	Post test	11.13	4.63			

Cont... **Table 2: Mean, standard deviation, Mean difference and 't' value of pre test of post test score on aspects of stress**

N=75

3	**Emotional stress**					
	Pre test	22.40	8.18	10.60	9.68	.001
	Post test	11.80	4.29			
4	**Social stress**					
	Pre test	21.60	7.83	9.50	9.13	.001
	Post test	12.10	4.66			
5	**Cognitive stress**					
	Pre test	25.10	8.84	11.30	12.06	.001
	Post test	13.80	4.94			
6	**Behavioural stress**					
	Pre test	22.90	8.26	10.84	11.63	.001
	Post test	12.06	4.28			
7	**Environmental stress**					
	Pre test	25.70	8.78	13.42	12.73	.001
	Post test	12.28	4.64			
8	**Occupational stress**					
	Pre test	23.10	8.16	10.60	9.86	.001
	Post test	12.50	4.78			

Table 3: Mean, Standard deviation, Mean Percentage, Mean difference, paired't' value of Pre test and Post test stress score

N = 75

Stress	Mean	SD	Mean %	Mean Difference	Paired 't' test	Level of Significance
Pretest	198.56	40.16	49.64	95.38	26.17	0.001
Post test	103.18	36.28	25.79			

Note: No of observations = 80; maximum possible score = 400

There is lower mean overall stress score in the post test (103.18) with SD±36.28 than the pre test (198.56) with SD± 40.16,'t' = 26.17 at 0.1% level. The mean difference was high and statistically significant at 0.1% level.

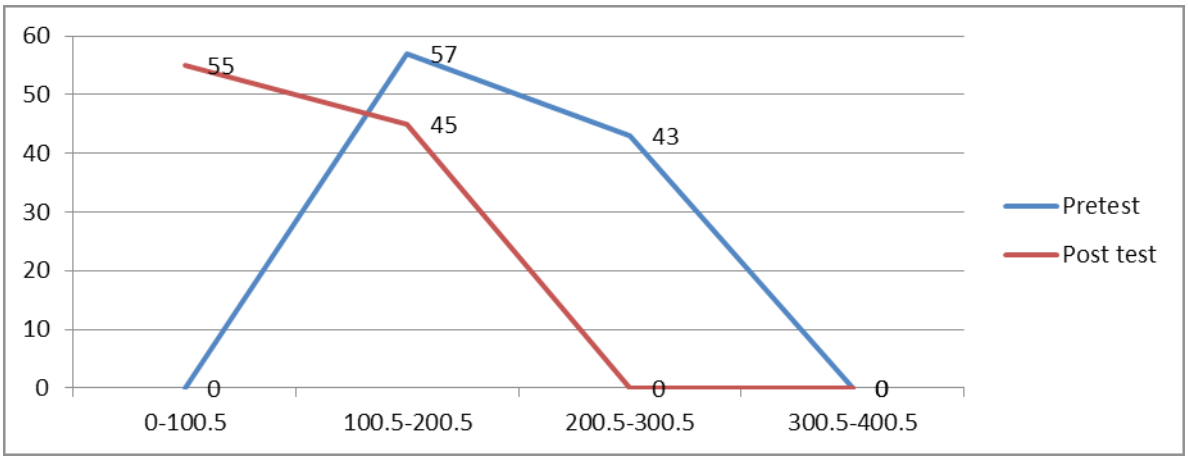

Figure 3: O-give curve representing the Comparison of the stress score in Pre test with the Post test among

Caregivers of Mentally Challenged Children.

The post test O-give lies to the right of the pre test score over the entire range showing that the post test scores were consistently higher than the pre test scores. The change in Stress is evident by the distance separated by the two curves at various levels among care givers of mentally disabled children in selected mentally challenged schools.

Similar results were reported in a pre experimental study conducted on effectiveness of pranayama on stress among 40 mothers of mentally challenged children at selected special schools[5]. There was highly significant difference in the pretest 24.55 and post test 15.98. The paired't' value was 10.20 which was statistically significant. Hence the Null hypothesis H_{O1} There is no significant difference between pre test and post test score on stress among caregivers of mentally Challenged children is rejected.

The third objective is to find out the association between selected background variables among teachers of mentally challenged children with their pre test score on stress.

Association between Selected background variables among Teachers of Mentally Challenged Children with

their pre test Stress score

The findings revealed that there was a highly significant association between pre test stress score and age (c^2 = 8.21, df = 3 significant at 0.043 level of significance, Experience (c^2 = 8.61 df = 3) significant at 0.04 level of significance, Hours worked per day (c^2 = 13.04, df = 2) significant at 0.004 level of significance, Number of children cared (c^2 = 9.39, df = 2) at 0.013 level of significance, Medical history (c^2 = 23.08, df = 6) significant at 0.001 level of significance,.

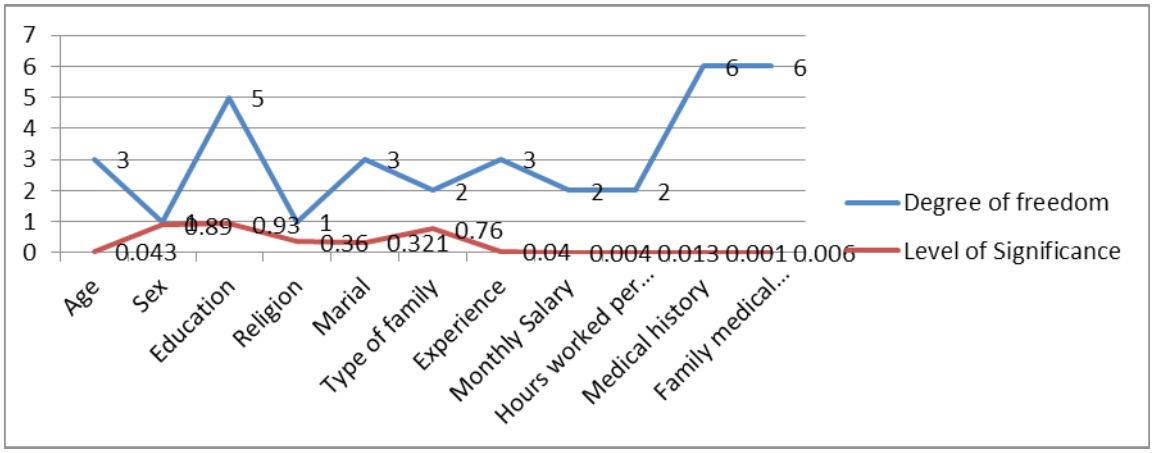

Figure 4: Line Diagram showing Association between Selected background variables among Caregivers

of mentally challenged children with their Pre test Stress score.

This finding was congruent with the results of the study conducted on caregivers stress concluded that 89% of the caregivers had moderate stress and there was a significant association with demographic variables such as gender, education, occupation, income and relationship with the child[1].

Conclusion

Relaxation therapy is an effective non-invasive, non-pharmacological, complementary and alternative therapy to reduce the level of stress among caregivers of mentally challenged children. Hence School Health Nurses can adopt this therapy to relax the body, mind and soul of the caregivers and enhance their quality of life.

Acknowledgement: I wish to thank God almighty for supporting me from the initial step of research till the dissemination of its findings as a original manuscript. I convey my heartfelt gratitude to Dr.A.Reena Evency, Principal, St.Xavier's Catholic College of Nursing, Chunkankadai for her research guidance to complete this study successfully.

Conflict of Interest: Nil

Source of Funding: Self

Ethical Clearance: Taken from District Differently abled Welfare Committee.

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A Quasi-Experimental Study to Assess the Effect of Phototherapy with Aluminum Foil Reflector on Level of Bilirubin among Neonates with Hyperbilirubinemia in Selected Hospital in Panipat, Haryana

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Abstract

Background & Objectives: The study aim to assess the effect of phototherapy with aluminum foil reflector on level of bilirubin among neonates with hyperbilirubinemia in selected hospital in Panipat, Haryana. **Materials & Methods:** The methodology of the present study was a Qusi-experimental research design. Sample size of the study was 60 (i.e. 30 each for experimental and control group) neonates selected with convenient sampling technique. Standardized tool (i.e. Kramer scale) with baseline characteristics was used for data collection. Data analysis was done to with the help of descriptive and inferential statistics. **Results:** The study findings reveal with regard to mean of baseline characteristics in experimental group the mean ± S.D. of pretest value is 12.97 ±1.732. But in post test the mean ±S.D. value is 17.30 &1.119. The Df value is 29 and t value is 12.868 and the result is significant. In control group the mean ±S.D. of pre-test value is 12.300 & 1.418.but in posttest the mean ±S.D. value is 16.43 & 1.654. The Df value is 29 and t value is 14.628 and result is significant. In Kramer scale of experimental group the mean ±S.D. of pretest value is 8.83 & 2.086. But in post test the mean ±S.D. value is 1.87 & 1.306. The Df value is 29 and t value is 18.094 and the result is significant. In control group the mean ±S.D. of pre-test value is 7.867 & 2.030. But in posttest the mean ±S.D. value is 1.10 & 0.548. The Df value is 29 and t value is 16.907 and result is significant. Hence, phototherapy with aluminum foil reflector was effective on level of bilirubin among neonates there was statically significant association between pre-test and post test level of knowledge of sample with socio-demographic variables like gender etc. **Conclusion:** The study concluded that the phototherapy with aluminum foil reflector was effective on level of bilirubin among neonates.

Keywords: *Phototherapy, Aluminum Foil Reflector, Hyperbilirubinemia.*

Introduction: "*Nurses are there when the last breath is taken and nurses are there when the first breath is taken although it is more enjoyable to celebrate the birth it is just as important to comfort in death." (Christine bell)*

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Background of the Study

Neonatal hyperbilirubinemia (NH) is one of the most common problems in newborns, affecting about 60% of term neonates and 80% of preterm neonates[1]. The word hyperbilirubinemia made by two word i.e. 'hyper' means excessive and 'bilirubinemia' means bilirubin. Hyperbilirubinemia occurs due to excessive breakdown of red blood cells[2]. It is a yellowish discoloration of the white part of the eye and skin in newborn due to high bilirubinemia levels. It is not a diseases but it is sign and symptoms of a diseases. Neonatal hyperbilirubinemia

can lead to many complications if left untreated[1].

Bilirubin is formed from breakdown of red blood cells. Red blood cells is broken down into spleen and product is heam that heam product broken down into biliverdin and then into unconjugated bilirubin. Unconjugated bilirubin is more common among neonates. Due to that unconjugated bilirubin baby body is seems yellow in colour. Conjugated bilirubin less common in neonates. Bilirubin has been metabolized but it accumulates in blood usually due to hepatic dysfunction.

Normal level of bilirubin is 0.2-1.2mg/dl when bilirubin level more than 2mg/dl may be visible on the sclera and on the face at about 4-5mg/dl with increasing bilirubin level; hyperbilirubinemia seems to advance in a head-to-foot direction, appearing at the umbilicus at about 15mg/dl and at the feet at about 20mg/dl.

Phototherapy is referred as 'heliotherapy'[4]. In phototherapy exposure to specific wavelength of light using polychromatic polarized light or fluorescent light. The aluminum foil doesn't absorb florescent light but it reflect the phototherapy light that light will decreases the level of the hyperbilirubinemia level from the body of baby that bilirubin level will excrete through urine and stool. The single phototherapy with low cost reflecting curtains is more effective than single phototherapy alone. It might be valuable attractive to double phototherapy in the treatment of newborns with hyperbilirubinemia.

Objective of the study

1. To assess the effect of phototherapy with aluminum foil reflector on level of bilirubin among neonates with Hyperbilirubinemia in experimental group and control group.

2. To compare the effect of phototherapy with aluminum foil reflector on level of bilirubin among neonates with Hyperbilirubinemia in experimental group and control group.

3. To find out the association of effect of phototherapy with aluminum foil reflector on level of bilirubin among neonates with Hyperbilirubinemia in experimental group and control group with selected demographic variables.

Hypothesis

All hypotheses will be tested at $p < 0.05$ level of significance:

v H_1- There will be significant effect of phototherapy with aluminum foil reflector on level of bilirubin among neonates with Hyperbilirubinemia in experimental group and control group.

v H_2- There will be significant association between effect of phototherapy with aluminum foil reflector on level of bilirubin among neonates with Hyperbilirubinemia with socio-demographic variables

Research methodology:

The methodology of the present study was a Qusi-experimental research design. Sample size of the study was 60 (i.e. 30 each for experimental and control group) neonates selected with convenient sampling technique. Standardized tool (i.e. Kramer scale) with baseline characteristics was used for data collection.

Descriptions of tool:

Part I: Socio-demographic variables.

Part II: Baseline characteristics.

Part III: Kramer scale.

Kramer scale scoring is:

Scoring	Extent
1	Face and neck only.
2	Chest and back.
3	Abdomen below umbilicus to knees.
4	Arms and legs below knees.
5	Hands and feet.

Data Analysis

Data analysis was done to with the help of descriptive and inferential statistics. The collected data are organized, coded and analyzed with the help SPSS

version.

Data analysis and interpretations:

· The first objective of the study was to assess the effect of phototherapy with aluminum foil reflector on level of bilirubin among neonates with Hyperbilirubinemia.

With regards to socio-demographic variables to gender experimental group male and female both are equal 15 (50.0%). In control group majority of samples are male 17 (56.7%). Gestational age depicts majority of samples in experimental and control group are term 21 (70.0%) & 23 (76.7%). birth weight in experimental and control group majority of samples were having 2000-2500 (g) weight 13 (43.3%) & 12 (40.0%). Phototherapy starts (hours) shows majority of samples were in experimental and control were in 72th hours 16 (53.3%) & 18 (60.0%). Neonates with current bilirubin level (mg/dl) were majority in experimental and control group in level 10-15 mg/dl 15 (50.0%) & 16 (53.3%). With regards to onset of hyperbilirubinemia majority of samples were onset in 2nd -7th day of life in experimental and control group 23 (76.7%) & 29 (96.7%).

· The second objective of the study is to compare the effect of phototherapy with aluminum foil reflector on level of bilirubin among neonates with Hyperbilirubinemia.

Table: 1: mean and standard deviation of samples according to pre-test and post test level of baseline characteristics.

(N = 30)

		BASE LINE SCORE				Paired T Test			
		Pretest		Posttest					
Group	**N**	**Mean**	**SD**	**Mean**	**SD**	**Df**	**T**	**Result**	
Experimental Group	30	12.97	1.732	17.30	1.119	29	12.868	S	
Control Group	30	12.300	1.418	16.43	1.654	29	14.628	S	
Unpaired T Test	Df	58		Df	58				
	T	1.631		T	2.377				
	Result	NS		Result	S				
	Maximum = 1Minimum = 0								

With regards to pre-test & post test level of baseline characteristics in experimental and control group mean was 12.97 and 12.30 and S.D was 1.732 and 12.300. Kramer scale pre-test and post test score of experimental and control group was mean was 8.83 and 7.867 and S.D is 2.086 and 2.030.

Table:2: Mean and Standard Deviation of samples according to pre-test and post test level of Kramer scale.

(N=30)

		KRAMER SCALE SCORE				Paired T Test		
		Pretest		Posttest				
Group	**N**	**Mean**	**SD**	**Mean**	**SD**	**Df**	**T**	**Result**
Experimental Group	30	8.83	2.086	1.87	1.306	29	18.094	S
Control Group	30	7.867	2.030	1.10	0.548	29	16.907	S
Unpaired T Test	Df	58		Df	58			
	T	1.819		T	2.965			
	Result	NS		Result	S			

The mean score of experimental group and control group of Kramer scale is 8.83 and 7.87. The standard value is 2.09 and 2.03. The post test score of baseline characteristics. The mean score of experimental group and control group is 17.30 and 16.43. The standard value is 1.12 and 1.65.

The third objective of the study to find out the association of effect of phototherapy with aluminum foil reflector on level of bilirubin among neonates with Hyperbilirubinemia in experimental group and control group with selected demographic variables.

The findings that in experimental group of baseline characteristics of pretest & post test levels of birth weight is 4.637(0.010) & 4.201(0.015) has significant association among neonates ($p<0.005$).The findings that in control group of baseline characteristics of pretest & post test levels of birth weight is 6.490 (0.002) & 5.029 (0.007) has significant association among neonates ($p<0.005$).

The findings that in experimental group of Kramer scale of pretest & post test levels of Current bilirubin level (mg/dl) is 24.065 (0.000). In post test of Kramer scale in any complication during pregnancy is 2.490(0.019) has significant association among neonates ($p<0.005$). The findings that in control group of Kramer scale of pretest & post test levels of Current bilirubin level (mg/dl) is 24.065 (0.00). In post test of Kramer scale in any complication during pregnancy is 2.490(0.019) has significant association among neonates ($p<0.005$)

The findings of experimental and control group in baseline characteristics of pretest and post test socio-demographic variables gender, gestational age, Age of newborn at which phototherapy starts (hours), Current bilirubin level (mg/dl), Neonates age at onset of hyperbilirubinemia (in days), Any complication during pregnancy are non-significant.

The findings of experimental and control group in Kramer scale of pretest socio-demographic variables gender, gestational age, Age of newborn at which phototherapy starts (hours), Neonates age at onset of hyperbilirubinemia (in days), Any complication during pregnancy are non-significant.

The findings of experimental and control group in Kramer scale of posttest socio-demographic variables gender, gestational age, Age of newborn at which phototherapy starts (hours), Current bilirubin level (mg/

dl), Neonates age at onset of hyperbilirubinemia (in days), are non-significant.

Summary, major findings, implication, recommendation:

Major findings of the study

The major finding of the study was in experimental and control group are as follows:

Ø With regards to socio-demographics variables regards to gender experimental group male and female both are equal 15 (50.0%). In control group majority of samples are male 17 (56.7%). Gestational age depicts majority of samples in experimental and control group are term 21 (70.0%) & 23 (76.7%). According to birth weight in experimental and control group majority of samples were having 2000-2500 (g) weight 13 (43.3%) & 12 (40.0%). Phototherapy starts (hours) shows majority of samples were in experimental and control were in 72th hours 16 (53.3%) & 18 (60.0%). Samples with current bilirubin level (mg/dl) were majority in experimental and control group in level 10-15 mg/dl 15 (50.0%) & 16 (53.3%). With regards to onset of Hyperbilirubinemia majority of samples were onset in 2nd -7th day of life in experimental and control group 23 (76.7%) & 29 (96.7%). Samples with no complication were majority in experimental and control group 23 (76.7%) & 25 (83.3%).

Ø The mean score of experimental group and control group is 12.97 and 12.30. The standard value is 1.73 and 1.42. The mean difference is 0.667 and unpaired t test value is 1.631. The p value is 0.1082 and table value is 2.00. The result is Non significant. The mean score of experimental group and control group is 8.83 and 7.87. The standard value is 2.09 and 2.03. The mean difference is 0.967 and unpaired t test value is 1.819. The p value is 0.0740 and table value is 2.00. The result is Non significant.

Ø The mean score of experimental group and control group is 1.87 and 1.10. The standard value is 1.31 and 0.55. The mean difference is 0.767 and unpaired t test value is 2.965. The p value is 0.004 and table value is 2.00. The result is significant.

Implication for nursing practice

1. The pediatric nurses can adopt phototherapy with aluminum foil reflector as simple, cost-effective, physiological nursing measure employed in care of neonates undergoing phototherapy at their clinical areas of practice.

2. The child health nursing practitioners can formulate a separate protocol for practicing phototherapy with aluminum foil reflector in their daily routine as control measure of hyperbilirubinemia.

3. Phototherapy with aluminum foil reflector can be taught and practiced by nurses in hospital care settings as part of their routine care.

Implications for nursing administrations

1. This research will be successfully implemented in Civil, Rainbow and LHDM & Dr. Prem hospital, Panipat.

2. The Child Health Nurse administrator along with the administrative bodies and other health care agencies can devise a program to focus on the measures to control bilirubin level among neonates.

3. The nurse administrator within the institution should motivate and train the staff to carry out routine assessment of level of bilirubin among neonates undergoing phototherapy with aluminum foil reflector.

4. The nurse administrator can allot separate budget for in-service education to disseminate the research findings to all nurses at various affiliated institutions.

Recommendations

1. The researcher will recommend the neonatal health care provider to do phototherapy with aluminum foil reflector.

2. The researcher will recommend performing phototherapy with aluminum foil reflector when the neonate is in hyperbilirubinemia & avoid unnecessary manipulation of neonates before the phototherapy in order to reduce the level of bilirubin.

3. The researcher will recommend for implementing the phototherapy with aluminum foil reflector among neonates undergoing phototherapy in the clinical area of Civil, Rainbow and LHDM & Dr. Prem hospital, Panipat.

4. The study can be replicated with large samples in various other settings for reinforcement.

Conclusion: The study concluded that the phototherapy with aluminum foil reflector was effective on level of bilirubin among neonates.

Ethical Clearance: Obtained

Source of Funding: Self

Conflict of Interest: Nil

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Nurses' Competence in Safety Blood Transfusion: The Impact of a Training Module

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Abstract

The Aim: The aim of this study was to evaluate the effectiveness of a training module about safety blood transfusion on nurses' competence. **Methods:** Pre experimental one group pre and post-test design was adopted. The study was conducted at the hematology department in Oncology Center Mansoura University Hospital. A convenient sample of 60 staff nurses were included. Data were collected by a structured interview questionnaire to assess nurses' knowledge level and observation checklist to assess nurses' practices pre, and post-blood transfusion training. Data were analyzed by using both descriptive and inferential statistics. **Results**: Revealed a highly statistically significant difference in the mean score of the nurses' knowledge level and practice about safe blood transfusion pre and post the training intervention (p=0.001). There was a strong positive relation between nurses' knowledge and practices scores post-training (r=0.745, P<0.000). Otherwise, it was observed that there was no correlation in the nurse's knowledge or practice with age and years of experience. Data were presented using tables and charts**. Conclusion**: Training module on safety blood transfusion can positively improve nurses' level of knowledge and practice. **Recommendation:** Ongoing in-service training to nurses at hematology units are essential to improve their knowledge and practice level. Evidence-based practices for blood transfusion should be integrated into the nursing curriculum.

Keyword: *Nurses' Competence, Safety Blood Transfusion, Training module.*

Introduction

Blood transfusions (BT) are a common life-saving treatment for patients. Its main goals are to treat recipients' underlying disorders and to replace blood loss, to increase the oxygen- carrying capacity of the blood in patients with anemia, to give blood exchange, to nourish the tissue with oxygen, to prevent bleeding and coagulation disorders[(1)]. Errors in the transfusion procedure often cause serious problems for the recipient, also severe and fatal reactions are not rare. As there is a possibility of an error occurring at every step of the blood transfusion procedure, close cooperation between health care providers and adequate knowledge is essential for the proper use of blood products and safe blood transfusion [(2)].It is estimated that out of every 13,000 blood transfusions patients, one error occurs most often due to human errors that can be avoided by proper education and redevelopment in transfusion protocols [(3)].

The most common causes of errors during the blood transfusion process are wrong blood group transfusions (inappropriate ABO), improper storage, and uncertain patient identity. These errors are related to insufficient training of nurses and lack of experience due to the lack of blood transfusion activities in some hospital wards [(4)].

In 2008 safe blood defined as the blood that does not cause disease or pose a danger to the recipient and does not contain harmful or infectious agents [(5)]. Nurses' competence in administering blood transfusion

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is a critical factor conditioning safety-high quality transfusion therapy [6].Several studies have been implemented on the nurses' knowledge level and practice about blood transfusion indicated that the nurses did not have adequate experience regarding safe blood transfusion skills, prevention of potential adverse reactions, and blood transfusion standards[7,8]. It appears essential to improve nurses' knowledge and practice to confirm the safety of this intervention.

Significance of the study

Reports of the World Health Organization indicated that more than nine million recipients in 90 different countries receive blood annually.It is recognized about 70% of all reported adverse events related toimproper transfusion. Additionally, half of these events involve more than one transfusion error [7]. The quality, effectiveness, and safety of blood transfusions are based on nurses' knowledge and practice. Inappropriate BT practice may lead to complications that may threaten patients' safety and/or the death of some recipients.In 2008, the American Association of Registered Nurses recommended that there was an urgent need to train and educate nurses about the hazards of blood transfusion, the latest safety guidelines, and clinical decision-making, it also directed the necessity to check nurses' knowledge and practices regularly ([9]) .

Many studies have been done in developed countries to assess the knowledge and practice of nurses concerning blood transfusion, however, few studies have been conducted in developing countries, especially Egypt. Therefore, the current study will cover this gap. This research study aimed to evaluate the effectiveness of a training module about safety blood transfusion on nurses' competence.

Aim of the Study

The present research study aimed to evaluate the effectiveness of a training module about safety blood transfusion on nurses' competence through the following objectives:

1.Assess nurses' knowledge level about safety blood transfusion pre and post module implementation.

2.Evaluate nurses' level of practice about safety blood transfusion pre- and post-module implementation.

3.Design and implement training module according to actual nurses' needs about safety blood transfusion.

4.Analyze the correlation between nurses' knowledge, practice scores and their sociodemographic characteristics.

Hypotheses

H1. The studied nurse who participates in the safe blood transfusion training module will have a higher knowledge score post implementation than pre-implementation score.

H2. The studied nurse who participates in the safe blood transfusion training module will have a higher practice score post-implementation than pre -implementation score.

H3. There is a relationship betweensociodemographic variables andnurses' knowledgeand practice scores.

Research Variables

The independent variablethe independent variablein the study is the blood transfusion training module.

The dependent variablesare the nurse's level of knowledge and practice.

Theoretical Framework

5-Steps Problem-Solving Model (PSM)

Among the various theories, the problem-solving theory has been recognized as aneffective framework for research, learning, teaching, and an effective framework for research, learning, teaching, and practice of problem-solving

The 5-step problem-solving model explains the problem-solving methods in a flexible, logical, clear, and controllable manner, all,or part of it can be applied to all problems.

In general, it can be classified under the heading

of cognitive and practical skills.PSM suggests that at the core of the model, six questions must be constantly asked to guide and facilitate each step of the model.The six questions are, what, when, where, why, and how. These questions are generally known as the "5WH" or questions and/or 5W and H. 5WH play an important role in the process of thinking to identify the key elements of each phase in the PSM [10].

Methods

Study design

Pre experimental one group pre and post-test design wereused to implement this study.

Setting

The study was conducted at the hematology department in theoncology Center, which consists of eleven floors thatproviding all advanced preventive and integrated treatment services to all citizens in the governorates of the Delta and Suez Canal.Regarding hematology department is located in 10 th floor with a capacity of 70 beds in male and female wardin which diagnosis, treatment, and monitoring of all types of blood diseases in addition to hematomas, including leukemias and lymphomas were done.

Study sample

A Convenience sample of all on-duty nurses during the data collection period working at the haematology department (25 nurses) in the previously mentioned setting were included in the study.

Tools of the study

Tool (I): A Structured InterviewQuestionnaire

Part (1): Sociodemographic characteristics: which include age, gender, qualifications, and years of experience in a hospital.

Part (2): Blood transfusion nurses' knowledge questionnaire: It was adopted fromKhalaf et al., [11] and modified by the researcher, consists of three parts concerning the concepts, rules, and policies as regards, blood transfusion process, and equipment used. It was in form of 34 true or false questions.The satisfactory level of nurses' knowledge scored ≥ 80%, while the unsatisfactory level of nurse's knowledge scored <80%, the correct answer =1, and the incorrect =zero.

Tool (II): Blood Transfusion Competency Checklist:

It was adopted from [12]. and modified by the researcher,it consisted of 3 phases: preparatory phase (8 items), procedure phase (7 items), and blood transfusion reaction phase (7 items). Scoring system estimated astotal items = 22 and scored by done correctly = 1 or not done= zero. Evaluation of best nurse's practice considered to be competent level was ≥80%, while the incompetent level was <80%.

The validity of the toolstools was reviewed by a jury of seven experts in the medicine and nursing field to examineits validity and all the necessary modifications were done accordingly.

Reliability of tools all tools of the study were checked for internal consistency and tested for reliability using Cronbach alpha & test-retest methods. Reliability of used tools showed high reliability scores for Nurses' Knowledge Questionnaire, Cronbach alpha = 0.761, (r= 0.458). Blood transfusion observation checklist, Cronbach alpha = 0.864 (r= 0.587).

Pilot study

A pilot study was conducted on 10 % of the total sample to assess feasibility, shape validity and applicability, reliability of tools also calculate the needed time for data collection.

The training module

The goal of this training module was to improve nurses 'skills to implement the blood transfusion in a safe manner, based on the latest international standards. It was designed in the simple Arabic language by researchers after an actual assessment of nurses' needs. A review of the relevant international literature (nursing books, articles, periodicals, magazines, and Internet resources) on the latest practices in safe blood transfusion for patients was also used. The training unit consists of

4 sessions, including theory and practice through online training due to the spread of the COVID-19 pandemic, and it includes, explanatory videos, slideshows, photo guides, and group discussion. The training module was reviewed prior to its implementation by a committee of experts.

Intervention

The actual fieldwork started from the beginning of September 2020 until the end of December 2020. Official written permission to conduct the study was obtained from the Dean of Faculty of Nursing Mansoura university and the director of theoncology center. This was achieved after a clear explanation of the nature and purpose of the study as well as its expected outcomes.

The intervention started by interviewing the studied subject, who agreed to participate in the training unit at the above-mentioned setting. The researcher started by introducing herself to the subjects. An explanation of the aim and nature of the study were done. In case of positive verbal answer and agreement to be an active participant in the study, the researcherconfirmed the willingness of the nurses to participate by a few days before the meeting.

The nurses attended a single meeting. The meeting included four sessions, the first session included an introduction into the training unit and a pre- assessment of knowledge level and practice using study's tools, this online session lasted about 45 minutes. The second session lasted about one hour and included a presentation given by the researcher with the use of simple illustrating colored pictures.

The main topics of the presentation were the problem of blood transfusion in Egypt, concepts,and issues in blood transfusion,standard guidelines, and policies. The third session was devoted to the safe practice of blood transfusion to improve the nurse's competence in this skill and lasted about 45 minutes. The fourth session was devoted to open discussion of all issues discussed in the meeting and lasted about 45mintes. At the end of the meeting, a 20-page booklet on principle issues in blood transfusion was submitted to participating nurses on wats app. group.

In order to determine the effectiveness of this training unit on nurses' knowledge and practice, nurses were interviewed after three months to fill the same questionnaire posed during the first session as post-test. The tools were administeredby the investigator (1) and the investigator (2) to collect data pre and post 3 months,the investigators are internship students who have been trained by the principal researcher to evaluate the study variables to prevent bias, then the differences in scores between the study variables were compared. The time required to complete this sheet was 15-20 minutes.

Statistical Analysis

Data entry was done using a compatible personal computer. The Statistical Package for Social Sciences (SPSS version 22.) was used. The content of each tool was coded, categorized, and then analyzed.Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and means, and standard deviations for quantitative variables. Quantitative continuous data were compared by using student t-test in case of comparisons between the mean scores of the studied group before and after implementationof the module. The qualitative studied variables were compared using the Chi-square test.

We considered a statistically significant difference at * P with a value of 0.05, and the difference was highly statistically significant at **P-value ≤ 0.001.

Results

Characteristics of studied nurses

Among the 25 nurses who completed the study**,** table (1) clarified the personal characteristics of the studiednurses**.** It was clarified that the highest percentage (64%) were having less than 25 years old and 88% of them were female. The academic profile indicated that the majority (56%) graduated from technical institute of nursing. Also, it was noticed that single constituted the higher percentage (54.2%) of them. Regarding nurses' working time in hematologic department (56 %) working for less than 2 year and 56% of them having less than 2 year of experience as a registered nurse**.**

Table (1) Socio-demographic data of studied Nurse N=25

Item	n=25	%
Age:		
Less than 25year	16	64.0
25-29 years	7	28.0
30-34 year	2	8.0
Gender:		
Male	3	12.0
Female	22	88.0
Level of education:		
School of Nursing	5	20.0
Technical Institute	14	56.0
Bachelor's Degree	6	24.0
Marital status:		
Married	11	44.0
Single	14	56.0
Years of Experience as a Register Nurse		
Under 2 years	14	56.0
2-4 years	7	28.0
5-9 years	2	8.0
10-14 years	2	8.0
Years of work		
Under 2 years	14	56.0
2-4 years	7	28.0
5-9 years	2	8.0
10-14 years	2	8.0

Effectiveness of safety blood transfusion training module:

Findings of table (2) indicated a highly statistically significant difference between mean scores of nurses' knowledge and practice before and after the intervention as the nurses' mean score of knowledge post-training (29.68 ± 3.27) were higher than their pre training course scores (24.24±4.39)where p≤ 0001**

Table (2) Comparison between mean score of nurses' knowledge and practice about safety blood transfusion pre and post the training module N=25

		Mean	SD	T	P
Knowledge score	**Posttest**	29.68	3.27	7.101	**0.000****
	Pretest	24.24	4.39		
Practice score	Posttest	20.60	1.50	5.33	**0.000****
	Pretest	**18.72**	**1.98**		

Note. * (P) Significant at (p ≤ 0.05) ** (P) highly Significant at (p ≤ 0.001)*post-test (post 3 months)

Figure (2) clarified total nurses' knowledge pre/post module as regards blood transfusion process. It was verified that (80%) of the studied nurses have unsatisfactory knowledge pre training module implementation compared to (20%) post module.

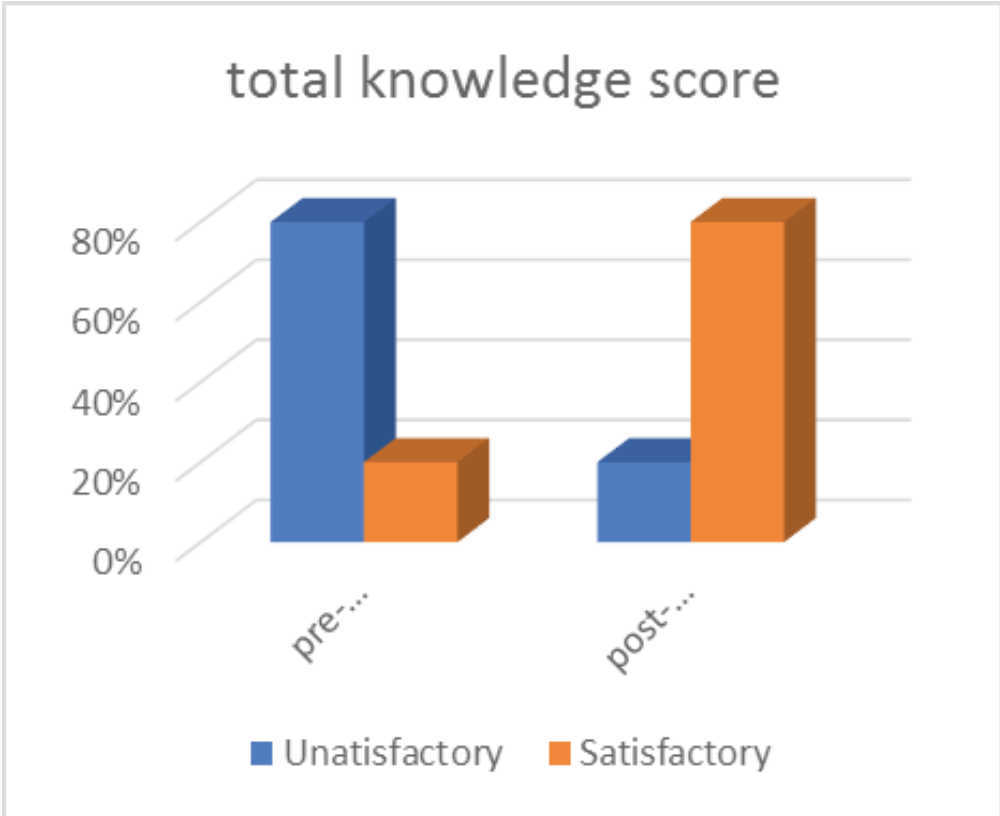

Figure 2. Nurses' level of knowledge about blood transfusion pre and post the training module N=25

N.B Satisfactory level ≥ 80%, Unsatisfactory level <80%

Figure (3) showed total nurses' practice pre/post- module implementationregarding blood transfusion.It was clarified that, overall score of satisfactory practice post-implementation of training module was highest percentage (92%) compared with (68%) before implementation.

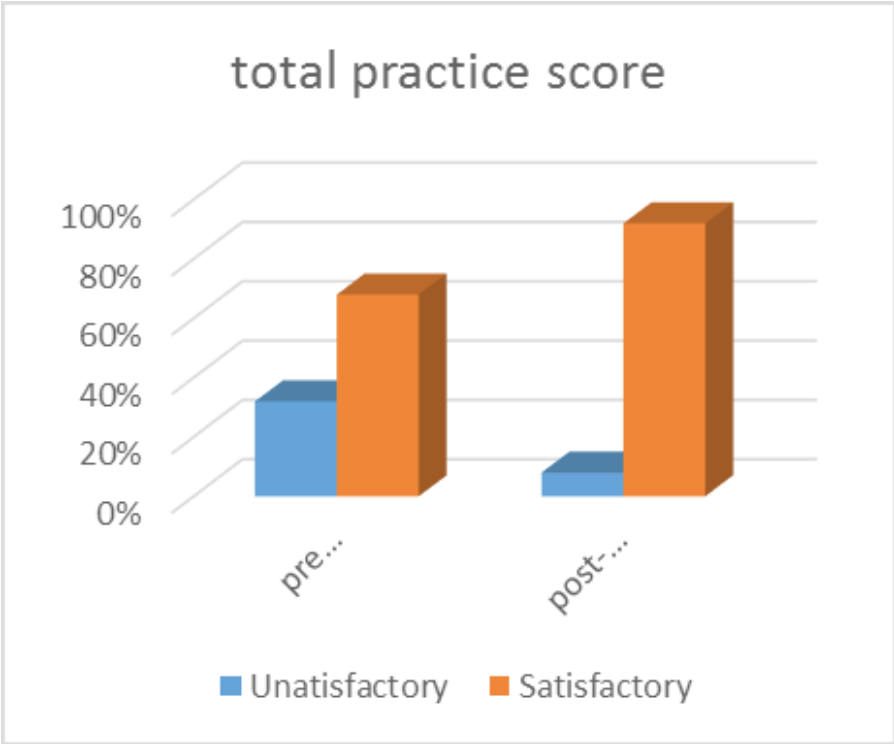

Figure 3. Nurses' competency level of practice in blood transfusion pre and post the training module N=25

N.B *Competent practice ≥80%, Incompetent practice <80%.

Table (3) showed a relation between total scores of nurses' practice and knowledge as regard safe transfusion before/after module implementation, it was clarified that there were a highly statistically significant positive relation between scores of nurses' practice and knowledge after-module implementation (r=0.745, P<0.000**).

Table (3) correlation between Total scores of Nurses' Knowledge and Practice as regard safety Blood Transfusion before/after-training module N=25

	Nurse's Knowledge &practices before training	**Nurse's Knowledge & practicesafter - training**
r	0.671	0.745
P-value	0.000**	0.000**

Note. * (P) Significant at ($p \leq 0.05$) ** (P) highly Significant at ($p \leq 0.001$) * post-test (post 3 months)

Table (4) showed that there was no statistically significant difference between knowledge and practice (score) with Socio demographicvariables.

Table (4) Association between pre-implementation knowledge and practice score with Socio *demographic variables N=25*

*N.B*Satisfactory level ≥ 80%, Unsatisfactory level <80%

N.B *Competent practice ≥80%, Incompetent practice <80%.

Items	Total score level of Knowledge				X2	P	Total score level of practice				X2	P
	Unsatisfactory		satisfactory				Competent		Incompetent			
	N	%	N	%			N	%	N	%		
Age												
Less than 25years	14	56.0	2	8.0	3.348	0.187	7	28.0	9	36.0	4.607	0.100
25-29years	4	16.0	3	12.0			0	0.0	7	28.0		
30-34 years	2	8.0	0	0.0			1	4.0	1	4.0		
Gender												
Male	1	4.0	2	8.0	4.640	0.031	0	0.0	3	12.0	1.604	0.205
Female	19	76.0	3	12.0			8	32.0	14	56.0		
Level of education												
School of nursing	5	20.0	0	0.0	1.935	0.380	3	12.0	2	8.0	2.525	0.283
Technical institute	11	44.0	3	12.0			3	12.0	11	44.0		
Bachelor's degree	4	16.0	2	8.0			2	8.0	4	16.0		
Years of experience												
Under 2	12	48.0	2	8.0	8.929	0.030	6	24.0	8	32.0	3.007	0.391
2-4	6	24.0	1	4.0			1	4.0	6	24.0		
5-9	0	0.0	2	8.0			0	0.0	2	8.0		
10-14	2	8.0	0	0.0			1	4.0	1	4.0		
Years of work												
Under 2	12	48.0	2	8.0	8.929	0.030	6	24.0	8	32.0	3.007	0.391
2-4	6	24.0	1	4.0			1	4.0	6	24.0		
5-9	0	0.0	2	8.0			0	0.0	2	8.0		
10-14	2	8.0	0	0.0			1	4.0	1	4.0		

Discussion

The current research work aimed to evaluate the effectiveness of a training module about safety blood transfusion on nurses' competence.

The present study indicated that most of the studied nurses (88%) were female, the majority of them (56%) were graduated from the technical institute of nursing.

The above-mentioned findings come in accordance with [13] who explained that the majority of studied participants were female that have a higher nursing degree. This may be due to the fact that our Arab societies still recognize nursing as a female act, and the reason for this is cultural considerations. This result supported by [14]who reported that the minority of study sample sex ware male and the percentage of the female nursing staff more than (90%).

In order to implement a training module to improve nurses' knowledge and practice regarding safe blood transfusion process, it was critical to evaluate their practice and knowledge level. In relation to the knowledge level of studied nurses, the findings of this study indicated that most nurses had satisfactory knowledge level about the blood transfusion post-training module compared to minor satisfactory knowledge level pre- implementation. Where the nurses' mean score of knowledge post-training (29.68 ± 3.27) were higher than their pre-training course scores (24.24±4.39) where $p \leq 0001^{**}$. From the above results, we can accept hypothesis (1) " Nurses will have a higher knowledge score post implementing the training module than pre-implementation".

This finding agreed with [5] who concluded that, before the educational intervention, most of the nurses had insufficient knowledge, However, it improved significantly in the post-intervention phase, and this applies to all relevant areas of knowledge. This come along with a study done by Kaur et al. [15] who clarified that , the mean knowledge score in the pre-training assessment was poor while in the post-training assessment the mean knowledge level was good, the difference was statistically significant. This is in harmony with [16] who concluded that approximately three fourth of the participants had a low knowledge level, the mean score was 23.45 (S. D= 5.76). Whereas in post-test, more than half of the participants achieved a high knowledge level. The mean score was 48 (S.D = 6.48) which clarified an improvement in the knowledge level of the participants after the training program.

When evaluating the impact of a training module for safe blood transfusion on nurses' competence practice. The study findings indicated a highly statistically significant difference between mean scores of nurses' practice before and after the training module where the nurses' mean score of practice post-training (20.60 ± 1.50) were higher than their pre training course scores (18.72±1.98). Where $p \leq 0001^{**}$.

This poor practice clarified among the study nurse's pre-module implementation is associated with unsatisfactory knowledge previously mentioned among them. Poor knowledge and practice together are sure to have a negative impact on the quality of nursing practice given by the studied nurses.In general, the current study indicated that the training module on safe blood transfusion was effective in improving knowledge and practice among the studied nurses.

The present study findings come in the same line with [17] who demonstrated that pre the intervention, most of nurses have a poor practice in blood transfusion skills, while post the intervention the majority of them provided good practice. It could be due to the lack of nurse motivation, hospital facilities and recourses and the lack of training courses which help them to perform standardized nursing practice.

This effect was further confirmed by interventional studies by [1] who revealed in their studies that continuous nursing training programs for nurses improve their practice and knowledge level.

Additionally, the present study findings were supported by [13] those who found that most of the nurses' knowledge was insufficient regarding blood transfusion process, which would prevent them from providing professional nursing care during the transfusion process. In addition, Cabinda, and others [18] stated that training and education are fundamental for all personnel involved

in the transfusion process because it reduces transfusion errors.

Based on the previous results, we can accept the second hypothesis " Nurses will have a higher practice score post implementing the training module than pre-implementation.

When analyzing the relation between sociodemographic variables and nurse's knowledge and practice, the present study revealed that, there was no statistically significant relationship or difference between the knowledge and practice (score) of the nurses with sociodemographic variables pre-training module.

Similarly, there was no correlation in the nurse's knowledge or practice in relation to their age, years of experience, and educational level in the pre- transfusion in hospital in a study applied by [6].This result was incongruent with [19] who stated that nurse's level of education and years of experience both influence nurses' level of practice. The results of the study were contrary to the third hypothesis, so the researcher could not accept the hypothesis that was proposed at the beginning of the study.

As regards the relationship between participant' practice and knowledge, the results of the current study clarified that there were a highly statistically significant positive relation between nurses' practices and knowledge as regards safe blood transfusion post-module implementation (r=0.745, P<0.000**).The study emphasized that a positive relation existed between the nurses' knowledge and practice scores.

Similar findings come along with this result and stated that insufficient nurses' knowledge about blood transfusion was reflected in unsatisfactory practice andstrong significant relations was found between nurses' level of knowledge and their practices regarding blood transfusion procedure ([13]).

Conclusion

The studied nurses showed improvement in their knowledge and scores of their practices about safe blood transfusion after implementing the training module. There was a positive association of high statistical significance between the knowledge and practice of the nurses as regards safe blood transfusion post-module implementation (r=0.745, P<0.000**).

Recommendations

Ongoing in-service training for nurses to improve their knowledge and practice level. Evidence-based practices for blood transfusion should be integrated into the nursing curriculum.

Competing Interest : The authors declare that they have no competing interests.

Financial support: No funding sources were provided

Acknowledgment : The researcher wishes to extend great thanks and appreciation to all those who assisted in conducting and completing this study.

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 DOI Number: 10.37506/ijone.v13i3.16308

Predicting Maternal Satisfaction with Delivery Services among Ultra-Orthodox Jewish Mothers in Public Hospitals

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Abstract

Maternal satisfaction is one of the most frequently reported outcome measures for quality of care, and it needs to be addressed to improve the quality and efficiency of health care during childbirth. Childbirth is a crucial experience in women's life as it has a substantial psychological, emotional, and physical impact. A positive experience in childbirth is important to the woman, infant's health and well-being, and mother-infant relationship. This study aims to identify new dimensions that affect maternal satisfaction of Ultra-Orthodox Jewish Mothers (UOJM) during childbirth in public hospitals in Israel. Ultra- Orthodox Jews in Israel live in gated communities and have unique cultural characteristics. The fertility rate of Ultra-Orthodox women is three times that of non-orthodox Israeli women. The Ultra-Orthodox view fertility as an important religious command. deriving from Genesis (1:28):"Be fruitful and multiply and replenish the earth and subdue it." The study identified 17 variables that influence UOJM's maternal satisfaction on delivery service in the birth room. Using Exploratory Factor Analysis (EFA) performed by PCA, we classified them into three dimensions (Cronbach's $\alpha > .67$): Interpersonal aspects of care, Surroundings and Technical Methods. Linear regression showed that all three dimensions significantly predict UOJM's maternal satisfaction, but personal care was found the most significant (17.63**, 14.23**, and 13.36** respectively). No significant correlation was found between the maternal satisfaction and age, income, education, and number of children.

Key words: *Obstetric care, Maternal satisfaction, Ultra-Orthodox Jewish Mothers Delivery Service, childbirth satisfaction*

Introduction

The Ultra-Orthodox sector in Israel is a gated and conservative community. Its members, who make up about 11% of the local population, adhere to traditions and customs based on Jewish law (less than 10% of the Ultra-Orthodox own computers, for example). As the Ultra-Orthodox see childbirth as fulfilling a spiritual purpose, the fertility rate within this community is three times higher than the general Israeli population .[1,2] Due to their unique cultural characteristics and in observance of Jewish law, the husband refrains from attending the delivery room and the hospitals allow UOJM to have a female friend in the room during childbirth.

Childbirth is view by many as a life transition that has significant impact on the physical and emotional well-being of a woman, her infant and her family where the woman birth experience and satisfaction can impact on her relationship with the baby and her self-esteem as a mother .[3,4,5,6,.] Maternal satisfaction presented as a multidimensional construct has been measured in different ways as follow: the Donabedian model[7] defines three components that determine the level of maternal satisfaction: 'Structure' refers to static characteristics of the care, including human resources, information systems, physical equipment, and facilities. 'Process' denotes all the activities classified as treatment, diagnosis, habitation, and preventive care; and 'Outcome' contains

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all the factors related to health status, patient wellbeing and satisfaction.

Another model is the Mackey Childbirth Satisfaction Rating Scale (MCSRS) [4,5] which was designed by Mackey and Goodman by examining the factors that affect childbirth satisfaction with "self" includes decision making; satisfaction with "nurse" relate to participation in decision making; satisfaction with the "partner" refers to treatment of the companion; satisfaction with the "baby" relates to the amount of time the baby stays with the mother; satisfaction with "physician status" refers to technical and professional knowledge of the staff; and "overall satisfaction" relates to satisfaction with the overall labor experience [5,,7,8]

Based on Exploratory Factor Analysis (EFA), this research identifies three dimensions of UOJM's maternal satisfaction on delivery service. Each of the three dimensions contains several items: The first dimension concerns the delivery room's surroundings and includes items such as sanitation, privacy, and accessibility of the staff. The second dimension concerns the technical methods being used at the delivery room which includes items such as emergency, anesthesia, and alternative equipment in the delivery room. The third dimension is the interpersonal aspects of care which contains items such as empathy, listening, courtesy, professionalism, and kindness of the service provider. The study aims to find out what dimensions affect UOJM's satisfaction and which dimension has the most effect. We also aim to find correlations between these dimensions and sociodemographic variables including age, income, education, and former childbirths of the mother, [8,9,10,11.]

Material and Methods

The survey samples were randomly selected in playgrounds adjacent to infant healthcare centers located in Orthodox neighborhoods. These HMO (Health Maintenance Organization) centers, named in Hebrew *Tippat Halav*, are public clinics that provide overall infant healthcare, including weight measurement, vaccination, and nutrition guidance.

Sample:

A random 161 Ultra-Orthodox mothers who were within 12 months after childbirth in a range of age, income, education, and previous pregnancies participate in this study.

The survey is described in Table 1.

Table 1: Socio-demographic characteristics of UOJM (*N* = 161)

	Variables	%	N
Age	18-24	27	40
	25-34	47	73
	35-42	26	48
Education	Low level of education (high school)	51.7	82
	High level of education (BA or higher)	49.3	79
Primiparity	Nulliparous (mother for the first time)	30.5	53
	Parous (1-4 children at home)	36.3	57
	Multiparous (has more than 4 children)	33.2	51
Income	Lower than average	25.4	41
	Average	39.3	63
	Higher than average	35.4	57

Procedure:

The research journey took please in two phases:

Phase 1: Qualitative research: focus group

In the first phase of the research, we conducted group interviews in six focus groups, each including eight to ten Ultra-Orthodox mothers. The purpose of this preliminary stage was to determine the main factors that affect UOJM's satisfaction in the delivery room. The preliminary survey included 36 UOJM who were up to 12 weeks postpartum. At this phase we identified 17 items that affected Ultra-Orthodox mothers' childbirth satisfaction.

Phase 2: Quantitative research: closed-ended questionnaire.

In the second phase we used closed-ended questionnaires based on validated and pretested questionnaires and on the Donabedian quality assessment framework[12,13] for the purpose of measuring mothers' satisfaction with obstetric care (13 14 15). Each of the 17 items was assessed by the mothers using a 5-point Likert scale (1-very dissatisfied, 2-dissatisfied, 3-neutral, 4-satisfied, and 5-very satisfied).

The questionnaires were administered by religious college students, who were familiar with the Orthodox dressing codes and lifestyle. The women filled in the questionnaires by themselves and handed them back within 10 minutes. A total of 161 full questionnaires were obtained in March-June 2019.

Statistics measures:

Maternal satisfaction of UOJM in this study is defined as a woman's positive perception of her experience during childbirth[14,15.]

The maternal satisfaction was measured using closed ended questionnaires adopted from the Donabedian quality assessment framework[12] We used a 5-point Likert scale (1-very dissatisfied, 2-dissatisfied, 3-neutral, 4-satisfied, and 5-very satisfied).

An exploratory factor analysis (EFA) was performed by principal component analysis (PCA) with varimax rotation[16,17,18] to classify the items into three dimensions (Cronbach's α 0.67-0.93) as shown in Table 2: Interpersonal aspects of care (explained 34% of the satisfaction variance), Surroundings (explained 17.5% of the satisfaction variance) and Technical Methods (accounted for 10% of the variance). Data analysis was performed using Statistical Package for the Social Sciences (SPSS). The correlation between UOJM satisfaction and each of the components was examined by Varimax rotation, and stepwise multiple regressions were performed to identify the significant predictors among the three satisfaction dimensions. Using Spearman's rank correlation coefficient, we measured the association between sociodemographic variables and satisfaction with each item, and linear multiple regression was used to determine the main predictors of satisfaction. An adjusted odds ratio was used to determine the level of association between selected variables, and variables having *p<0.05 were retained.

Table 2: Explanatory factor analysis of the three dimensions

Dimension and items	Cronbach's *α*
[1] Technical Methods 1. Process and medical facilities in the room (medication, equipment, etc.) 2. Equipment for emergency 3. Availability of anesthesia equipment 4. Alternative medicine and therapy during delivery	0.67

Cont... **Table 2: Explanatory factor analysis of the three dimensions**

	[2] Surroundings	0.93
5.	Sanitation of facilities (water, toilets, showers) in the room	
6.	Privacy maintained by the staff during the care.	
7.	Organizational teamwork	
8.	Attendance and accessibility of the service giver in the room	
	[3] Interpersonal pf care	0.74
9.	Professional training and knowledge of the nurses and midwives	
10.	Waiting time and responsiveness of the personnel	
11.	Listening and attending to the mother's wishes	
12.	Quality of the service and treatment	
13.	Kindness and attention of the personnel to the mother	
14.	Kindness and courtesy of the personnel to the mother's companion	
15.	Consulting with the mother before intervening.	
16.	Providing information to the mother during procedures	
17.	Empathy and consideration of the nurses and midwives	

Results

Spearman correlation was used to find correlation between the dimensions of satisfaction and demographic variables. As shown in Table 3, significant correlation was not found, showing that UOJM satisfaction is not related to age, income, education, or previous childbirths. (*p<0.05 **P<0.01)

Table 3: Correlation between dimensions of satisfaction and demographic variables

Dimension	Age	Education	Income	Previous childbirths
Interpersonal aspects of care	-.07	-.05	.11	-.14
Surroundings	.01	-.09	.07	.08
Technical Methods	-.15	.19	.19	-.11
Mean satisfaction	-.07	-.04	.18	-.07

*p<0.05 **P<0.01 r_s=.219

Linear multiple regression was conducted to examine which dimensions may be significant in predicting mothers' satisfaction (Table 4). Linear regression explained 93% of the satisfaction variance ($F(3,147) = 146.62$, $p<0.001$). All three aspects highly correlated with mothers' average satisfaction, but the dimension of Interpersonal pf care had the highest score (β=.57).

Table 4: Linear multiple regression of satisfaction dimensions

Dimension	t	B	Std. Error	Beta
Interpersonal f care aspects	17.63**	.594	.03	.57
Surroundings	14.23**	.474	.02	.48
Technical Methods	13.36**	.437	.02	.43

*p<0.05 **P<0.01

The regression analysis was found to be significant [F (7,117) =98.17, p<0.001] and explained 93% of the satisfaction's variance. As seen in Table 5, the demographic variables (age, income, education, and previous childbirths) were not found to be significant predictors of UOJM satisfaction. (β= -.05).

As seen in the results, Interpersonal aspects of Care is the main predictor of UOJM satisfaction (β=.47). Based on linear regression, the dimensions of Technical Methods and Surrounding predict maternal satisfaction to a lesser extent than Interpersonal pf care aspects (β =.27, β=.21)

Table 5: Linear multiple regression of factors that affect mothers' satisfaction.

Dimension	t	B	Std. Error	Beta
Interpersonal pf care	23.81**	.62	.02	.47
Surroundings	11.78**	.37	.03	.27
Technical Methods	9.74**	.35	.02	.21
Age when giving birth	1.42	.06	.04	.05
Education	-1.09	-.04	.04	-.05
Income	-.67	-.02	.03	-.02
Previous childbirths	1.33	.05	.03	.04

Discussion

Maternal satisfaction is one of the most frequently reported outcome measures for quality of care, and it needs to be addressed to improve the quality and efficiency of health care during childbirth. Childbirth is a crucial experience in women's life as it has a substantial psychological, emotional, and physical impact. A positive experience in childbirth is important to the woman, infant's health, and well-being, and mother-infant relationship[20,21,22]Maternal satisfaction is a multidimensional concept influenced by a variety of factors related to the service provider, the Surroundings, the procedure, and other variables in the delivery room [21,23,24]

Models emphasis the impact of positive correlation between service provider and patient satisfaction. The Donabedian's framework[13,25], emphasis the Structure-Progress-Outcome of care increase patient satisfaction

with health care. The Mackey model MCSRS [4,25] emphasizes the personal care to the baby, patient and the partner is the main component influence mother's satisfaction.

Client Satisfaction Questionnaire (CSQ-8) using eight questions also was used measured childbirth satisfaction express the importance and high rank of empathy and emotional support of the service provider.[5,26,27,28]

Most of the studies in this field have examined non-religious mothers in different parts of the world. Due to the high fertility rate of the Ultra-Orthodox population in Israel (three times that of the general population) and its unique culture, it is interesting to find what factors influence the satisfaction during childbirth in this sector.

The study identified 17 items and classified them into three dimensions: Surroundings in the room, Technical Methods used in the delivery room, and the Interpersonal pf care. All these three dimensions show significant influence on Ultra-Orthodox mothers' satisfaction during childbirth with high reliability (Cronbach's $\alpha > .67$).

Although all three dimensions were significant predictors of mothers' satisfaction, the main significant predictor was Interpersonal pf care, which includes courtesy towards the patient, listening to her, informing her, and consulting with her during the medical procedures. The importance of Interpersonal pf care in the overall experience is not unique to UOJM. It can be seen in other studies that highlighted the patient–practitioner relationship, especially communication, providing information, and relationship during childbirth, as the main factor to influence mothers' satisfaction.[22,29,30,31]

We expected to find different predictors as we targeted a sector with unique characteristics. However, our findings show that even among observant women, who rely on God and trust God's command, satisfaction with the experience of childbirth depends on personal interaction above other factors. The orthodox mother believes in God's authority and follows the traditions of religious observance, yet "in the moment of truth ", she needs to have good communication with service providers, be seen as a human being, and be informed and consulted with. One can say that regardless of her uncompromised belief, the orthodox mother needs to have a human bond to feel reassured and safe.

The significance of Interpersonal pf care dimension can be explained as follows. Since 2000, the internet has been forbidden in the orthodox community, as it is described by the Council of Great Torah Sages "as a terrible danger... and as the world's biggest seduction factor" [32,33] . Thus, the Ultra-Orthodox woman has no source to inform her of delivery room procedures and what practices are considered conventional and modern. Almost everything she knows about childbirth is passed on from friends or relatives. As a result, she arrives at the delivery ward anxious and uncertain, seeking – despite her unshaken faith in God – information and reassurance from the medical staff.

While studies in other countries have indicated positive association between mothers' satisfaction and their age, income level, and number of previous deliveries, these factors were found to have no effect on the Ultra-Orthodox mother. This contrasts with other factors, such as interpersonal communication, receiving information, and being treated cordially[4,21,34,] (Melese, Gebrehiwot, Bisetegne & Habte, 2014; Srivastava et al., 2015; Goodman et al., 2004).

The study results emphasize the importance of the interaction between the mother and the service providers during childbirth. Since childbirth is an especially sensitive experience that differs from other medical procedures[35,36,37] and may involve exceptional pain, having a sense of control over the situation and maintaining comfortable interaction with the staff is crucial to the patient.

Acknowledgments: We would like to extend our deepest gratitude to the Hadassah Academic College in Jerusalem for budgeting this research.

Our appreciation goes to the data collectors and supervisors who helped us in monitoring and supervising the data collection process. Our special thanks also go to the Heads of the Hadassah Academic College.

Abbreviations

UOJM - Ultra-Orthodox Jewish Mother

Declarations

Ethics approval and consent to participate: The ethical approval was granted by the Internal Ethical Review Board of Hadassah Academic College in March 2019.

The manuscript does not include any individual person's data, hence consent to publish is not applicable.

The participants have confirmed their consent by written forms.

Consent to Publish: The manuscript does not include any individual person's data, hence consent to publish is not applicable.

Conflict of Interest: Iris Gertner and Keren Or Chen declares they have no conflict of interest.

Source of Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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 DOI Number: 10.37506/ijone.v13i3.16309

Effectiveness of Olive Oil versus Mustard Oil Massage on Pain Perception among People with Arthritis

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Abstract

The study was conducted to compare the effectiveness of olive oil versus mustard oil massage on pain perception among people with arthritis.Quasi experimental, non-randomized control group design was utilized to perform the study with Purposive sampling technique. Data were collected from the patient with arthritis who fulfilled the inclusion criteria through Modified (WOMAC) - Western Ontario and Mc master university Osteoarthritis index scale (1964). The mean post test score on pain perception in study group I and study group II was 47.60 and 38.00.The unpaired 't' test value was 3.567 which was significant at $p \leq 0.05$ and highly significant at $p \leq 0.01$, $p \leq 0.001$. It showed that mustard oil massage and olive oil massage were effective in reducing pain perception, in that mustard oil massage is more effective than olive oil massage.

Key Words: *Pain perception, Arthritis, Mustard oil and Olive oil massage.*

Introduction

Arthritis is a universal, slowly progressive degenerative condition affecting men and women as they age. It causes pain and difficulty in moving the joint, muscle weakness, limited range of motion, joint deformities, disturbances in gait and sleep. About 80% of the elderly people are suffering with arthritis and may experience severe pain during mobilization unable to do their daily activities properly[(4).] In India, it is likely to notice endemic arthritis with 80% population above 65 years suffering from pain in joint, 40% of these people are likely to suffer from severe arthritis, which affects their daily activities. About 80% of the people in India, are suffering from arthritis and the patient may experience severe pain during mobility and cannot perform activities of daily living. Oil massage is beneficial for people with knee arthritis. Massage therapy using oil or lotion that contains essential oils (highly concentrated plant oil) for massage. During the oil massage, the essential oil molecules are absorbed through the skin and help to reduce arthritis pain[(5).]

Olive oil act as a natural anti-inflammatory, non-steroidal anti-inflammatory drugs (NSAID) such as Aspirin or Ibuprofen. Mustard oil contains a compound called allylisothiocyanate which reduces inflammation in the body and also has an analgesic effect in relieving pain[(6)].Mustard oil is obtained from mustard seeds. Mustard oil contains Omega 3- fatty acids which scientifically improves blood flow, reduces stiffness, swelling to the part involved and helps to relieve joint pain and muscle pain.During the community visit, the investigator identified that, most of the people were suffering from arthritis pain, disrupting their normal daily activities,the people themselves from going to work. Hence the researcher developed an interest to implement olive oil massage and mustard oil massage to reduce pain perception among people with arthritis.

Statement of the problem: A Quasi Experimental Study to Compare the Effectiveness of Olive Oil versus

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Mustard Oil Massage on Pain Perception among People with Arthritis in Selected Villages at Kanyakumari District

Objectives of the Study

1. To assess and compare the pre test and post test score on pain perception among people with arthritis in study group I and study group II.

2. To evaluate the effectiveness of olive oil and mustard oil massage on pain perception among people with arthritis in study group I and study group II.

3. To associate the selected demographic variables with their pre test score on pain perception among people with arthritis in study group I and study group II.

4. To associate the selected clinical variables with their pretest score on pain perception among people with arthritis in study group I and study group II.

Hypotheses:

H_1 There is a significant difference between pre test and post test score on pain perception among people with arthritis in study group I and study group II.

H_2 There is a significant difference between post test score on pain perception among people with arthritis in study group I and study group II.

Research Methodology

Research approach: The researcher utilized quantitative research approach.

Research design: A Quasi experimental comparative research design was utilized to perform the study.

Research setting: The setting adopted for this study consisted of two Villages chemparuthivillai and Moolachel coming under Upgraded Block Primary Health Centre Kodhanaloor

Population: People with arthritis, between the age group of 35-75 years.

Sample: 40 people in study group I and 32 people in study group II were selected. 10 people in study group I and 2 people in study group II were dropped out during data collection.

Sample size:30 samples in study group I at Chemparuthivilai village and 30 samples in study group II at Moolachel village.

Sampling technique: Purposive sampling technique

Description of tool:

The tool used in the study was Modified (WOMAC) western ontario and mc master university osteoarthritis index scale) through observational checklist

The scoring was categorized as follows

S. No.	Pain Perception	Score	Percentage
1	Mild	0-39	0-36%
2	Moderate	40-70	37-72%
3	Sever	71-100	73-100%

Method of Data Collection:

Phase I Selection of people with arthritis: After obtaining formal permission from the Principal of St. Xavier's Catholic College of Nursing, Chunkankadai and the Block Medical Officer, Upgraded Block primary health centre, Kodhanaloor, the participants were selected based on the inclusion and exclusion criteria. The researcher obtained informed written consent from each person with arthritis and proceeded with data collection. Demographic and clinical variables were collected through structured interview schedule.

Part II Pre test: The data was collected from the selected participants and Modified WOMAC scale was used to assess the pain perception.

Phase III Intervention: The researcher explained the importance of oil massage and applied the intervention directly to the people with arthritis. All participants were verbally encouraged and motivated before the onset of the massage therapy ,consisting of warm up, centripetal friction, stroking, effurage,

petrissage, hacking, pounding, lateral vibration, flexion, extension and rotation (internal and external). The total length of massage therapy was 20 minutes once a day for 7 days, both arms and legs per person.

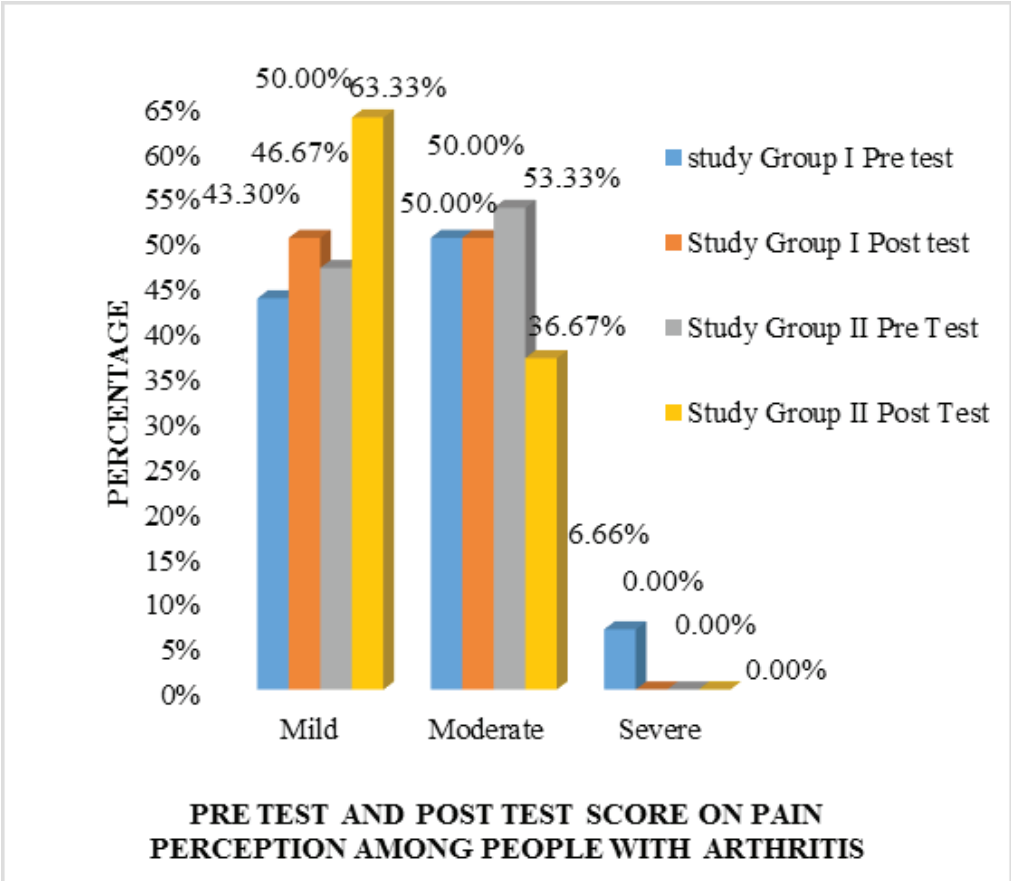
Phase IV post test: Post test was conducted on the 7th day using Modified (WOMAC) Western Ontario and Mc Master University Osteoarthritis Index scale for both study group I and study group II.

Results

Table 1: Comparison of mean, standard deviation and unpaired't' test on post test score on pain perception among people with Arthritis in study group I and study GroupII.

Variables	Group	Mean	SD	Unpaired 't' test
Pain Perception	Study group 1(n=30)	47.60	12.60	3.567***
	Study group 11 (n=30)	38.00	7.32	

Significant at* p≤0.05, **p≤0.01***p≤0.001



PRE TEST AND POST TEST SCORE ON PAIN PERCEPTION AMONG PEOPLE WITH ARTHRITIS

Discussion

The study was done to evaluate the effectiveness of olive oil versus mustard oil massage on pain perception among people with arthritis. Based on the data collection the mean score on pain perception among people with Arthritis in study group I, the post test mean score was 47.60 with the standard deviation 12.77 and study group II, the post test mean score was 38.00 with the standard deviation 7.32. The estimated unpaired't' value was 3.567*** which was significant at $p \leq 0.05$ and highly significant at $p \leq 0.01$, $p \leq 0.001$. Hence mustard oil was more effective in pain perception among people with arthritis.

Conclusion

The aim of the study was to compare the effectiveness of olive oil versus mustard oil massage on pain perception among people with arthritis. The introduction of the massage therapy in nursing intervention shall help to reduce the pain perception of patients with arthritis. This study revealed that mustard oil massage was more effective than olive oil massage, and mustard oil is easily available and shall be used as a home remedy.

Acknowledgement: I wish to thank God Almighty for all the blessings showered upon the beginning to till end of the research study.I convey my profound gratitude and sincere thanks to Dr.A.ReenaEvency,Principal,Dr.G.Feby,Vice principal and My research guide Mrs.C.MargretNisha, Professor St.Xavier's Catholic College of Nursing, Chunkankadai and my beloved mother and sister for their continuous guidance, support and constructive suggestions which helped me to complete this study successfully.

Conflict of Interests: Nil

Source of Funding: Self

Training: The primary researcher has undergone the Massage training and received certificate to apply the same from an experienced Medical Officer of Naturopathy and Yoga.

Ethical Clearance: The proposed study was conducted after the approval of the dissertation committee of St.Xavier's Catholic College of Nursing, Chunkankadai.

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 DOI Number: 10.37506/ijone.v13i3.16310

Virtual Simulation in Nursing Education: A Systematic Review

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Abstract

Background: With recent advances in computer and information technology over the last few years, there has been an increase in the use of virtual simulation in the field of nursing education.

Design: Systematic review of experimental, quasi-experimental, and qualitative studies.

Data sources: CINAHL, MEDLINE, PubMed, ERIC, PsychINFO, and ProQuest were searched by title and abstract spanning from January 2010 to December 2020.

Results: Twenty-three studies were included in the narrative summary. Overwhelming evidence from these studies shows a positive impact on student knowledge, skills, affective learning outcomes. Studies were mostly conducted in developed countries perhaps due to the high cost of acquiring this technology in the classroom.

Conclusion: Virtual simulation is highly effective in improving knowledge, skills, and affective outcomes of students. Nursing educators and other stakeholders need to support future initiatives in the advancement of virtual simulation and possible inclusion in the nursing curriculum.

Keywords: *Virtual simulation, Virtual reality, Education, Nursing, Systematic review, Technology*

Introduction

Traditionally, nursing programs utilize in-person clinical simulation in which students have to be physically present in a clinical lab with a mannequin set-up and students perform clinical skills under the supervision of a nursing faculty. With recent advances in computer and information technology over the last few years, there has been an increase in the use of virtual simulation in the field of nursing education. The need for virtual simulation in nursing education has been further bolstered when the COVID19 pandemic brought all face-to-face classes to a halt and transitioned into remote learning. With this pandemic, virtual simulation is increasingly becoming a cornerstone of clinical training[1]. However, because virtual simulation is relatively new, there is no robust body of knowledge to support its effectiveness in student learning. As a result, regulatory bodies and policymakers are hesitant to accept clinical hours done via virtual simulation as a substitute for traditional clinical experience. However, the Society for Simulation in Healthcare issued a position statement advocating for the replacement of clinical hours usually completed in a healthcare setting with that of virtually simulated experiences during this time of a global health crisis[2].

Virtual simulation is defined as a computer-generated, three-dimensional image or environment that can be interacted with in a seemingly real or physical way by a person using special electronic equipment, such as a helmet with a screen inside or gloves fitted with sensors[3]. There are many advantages to using virtual simulation in nursing education. Students and nursing faculty need not be present to do the clinical skills demonstration or nursing procedure. It allows students to perform the nursing procedure repeatedly without any risk of causing harm to an actual patient. For nursing

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faculty, virtual simulation provides more capability to monitor student performance and provide feedback. It is also relatively easier to standardize the learning content or adjust it to meet the student's level of performance. Some of the drawbacks of virtual simulation include the high cost of setup as well as its maintenance. Also, the absence of human connection and interaction can become a disadvantage because it eliminates personal communication between the student and the faculty. The lack of software flexibility can also be limiting to the educational experience since the program is designed to only do what the software is programmed to do. Despite these disadvantages, the potential of the virtual simulation being a standard inclusion in a nursing curriculum is highly possible in the near future due to the student population becoming more technologically adept and savvy.

Learning through virtual simulation has its underpinnings on experiential learning theory advanced by Kolb[4]. This theory explains that learning happens optimally when students experience it firsthand. Students learn more by doing and those experiences are retained in their mind better compared to when they are mere passive learners. The first two stages of Kolb's theory – i.e., concrete learning and reflective observation – involve understanding an experience. The remaining two stages – i.e., abstract conceptualization and active experimentation – focus on transforming an experience. With virtual simulation, students begin by understanding the theoretical and practical concepts presented in the virtual reality environment. Subsequently, students' level of understanding broadens to a more abstract concept, develop their ideas, and test those ideas through their own investigation. They come out of this learning process more knowledgeable, and it teaches them the skill of how similar complex situations can be handled in a real-life setting when an opportunity presents itself.

The goal of this paper is to evaluate the effectiveness of virtual simulation in nursing education by conducting a systematic review of the literature. The outcomes of interest are knowledge, skills, and attitudes. A study done by Foronda, et al.[5] looked at the virtual simulation in nursing education from a span of 1996-2018. This particular study showed that virtual simulation is an effective pedagogy to achieve learning outcomes. Another study done by Woon, et al.[6] investigated the effectiveness of virtual reality training in improving knowledge among nursing students by doing a systematic review, meta-analysis, and meta-regression for studies done until October 15, 2019. They found that virtual reality may be a viable teaching strategy to improve knowledge acquisition. Since 2018, additional studies related to this have been conducted. This present study provides an up-to-date narrative review of studies from January 2010 until December 2020. In addition, this work extends beyond just looking at how virtual simulation affects the knowledge domain but also considers its impact on the skills and affective domains.

Method

Articles were screened against the inclusion and exclusion criteria for eligibility by two independent reviewers and all discrepancies were resolved by discussion. The selection of the included studies is detailed in the PRISMA flow diagram. Six electronic databases (CINAHL, MEDLINE, PubMed, ERIC, PsychINFO, and ProQuest) were searched by title and abstract for articles published from January 2010 through December 2020. A combination of subject heading terms and keywords were included: (virtual simulation OR virtual reality) AND (nursing OR education OR instruction) AND (knowledge or skills or attitudes). EndNote X9, a reference management software, was utilized to record all citations from the databases and to eliminate duplicates. The inclusion criteria for this review were the use of virtual simulation in nursing education; study designs that were either experimental, quasi-experimental, and qualitative; at least 20 participants per condition; and written in the English language. Articles were excluded if the simulation did not involve virtual technology. Articles were also excluded if the virtual simulation was not used in any teaching context. Studies that were not peer-reviewed (e.g., theses) were also excluded. The author has created a separate list of full-text articles that were reviewed and excluded for specific reasons and can be made available upon request.

Critical appraisal for the selected articles was conducted using the JBI's Critical Appraisal Tool[7].

The reviewers independently appraised the 23 studies using the appropriate JBI's critical appraisal tools and provided an appraisal score to each study. Based on a discussion between the reviewers, the studies were decided as 'good quality' before they were included in the review. Articles that were chosen were those that focus on: 1.) the relationship of virtual simulation in increasing student knowledge, 2.) effectiveness of virtual simulation in improving nursing skills and student competencies, and 3. user experience of virtual simulation in nursing education. A total of 512 potential articles were identified during the initial database search. After removing duplicate articles, 320 articles remained. These 320 articles were screened by titles and abstracts for relevance. After excluding 256 articles that were deemed irrelevant to the topic, 64 full-text articles were retrieved and assessed for eligibility. Using the inclusion and exclusion criteria as the basis, a total of 41 articles were further excluded. A total of 23 articles were identified and selected for this present study.

Results

A total of 23 studies met the inclusion criteria. These studies were conducted in 9 countries: Canada (*n*=3), Ireland (*n*=1), Kuwait (*n*=1), Malta (*n*=1), Portugal (*n*=2), Scotland (*n*=1), Taiwan (*n*=1), Turkey (*n*=3), and United States (*n*=10). Out of the 23 included studies, seven were experimental design studies, eleven were quasi-experimental design, and five were qualitative research. The total number of participants in this review was 1,929 which are mostly nursing students while a few are from other health care fields. The types of virtual modalities in this review consisted of virtual clinical simulation, virtual simulation training, virtual patient simulator, virtual gaming simulation, virtual reality software, and virtual game-based learning. The studies were further categorized based on Kraiger and colleagues' multidimensional classification of learning outcomes: cognitive, skills-based, and affective[8]. In this study, skills-based outcomes refer to generic or transferable skills (e.g., communication, clinical reasoning, critical thinking) related to the use of virtual simulation. On the other hand, cognitive learning outcomes refer to knowledge acquisition and cognitive strategies associated with the use of virtual simulation. Lastly, affective domains include attitudinal outcomes, self-efficacy, engagement, ease of use, and preference in using virtual simulation. The results were narratively summarized to discuss: 1. the effectiveness of virtual simulation in improving student knowledge; 2. effectiveness of virtual simulation in improving skills; and 3. impact of virtual simulation on student attitude and satisfaction.

Knowledge

Out of twenty-three studies included in this synthesis, eleven studies assessed the effectiveness of virtual simulation on improving the cognitive domain of learning. Two studies examined the effect of virtual simulation on students' level of critical thinking. Kang, et al.[9] found that critical thinking was improved but was not significant before and after virtual simulation. Similarly, Turrise, et al.[10] also found that there are no statistically significant differences in critical thinking between the intervention (virtual simulation) and control (written case studies) groups. Rossler, et al.[11] also concluded that the use of virtual simulation has no statistically significant findings in knowledge for those using traditional programmatic teaching versus the addition of virtual reality simulation (VEST). Furthermore, Giordano, et al.[12] found no difference in knowledge retention towards responding during an opioid-related overdose between students using virtual reality simulation to hybrid simulation. Cobbett, et al.[13] also found no statistically significant difference in student knowledge between students taught face-to-face and those taught with virtual clinical simulations.

Contrary to these studies, Borg Sapiano, et al.[14] found that virtual simulation improves knowledge during patient deterioration. Padilha, et al.[15] also found in their study that the clinical virtual simulation group made more significant improvements in terms of knowledge posttest in both hybrid simulation group and virtual simulation group. Samosorn, et al.[16] and İsmailoğlu, et al.[17] also found statistical significance in the pre- and post-test results in participants knowledge. Similarly, Foronda, et al.[18] found statistically significant improvement in cognitive knowledge related to evidence-based practice.

Skills

Eight studies evaluated the efficacy of virtual simulation in improving the skills of the students. Clinical skills tasks that were examined included learning of wound care[19]; nasogastric tube placement[20]; recognition of intraoperative myocardial infarction[21]; clinical judgment[22]; phlebotomy performance[23]; tracheostomy care[24]; pediatric nursing care[25]; and intravenous catheterization[17].

Two of these studies found a significant difference in skills performance between those who used virtual simulation versus those that used the traditional mode of teaching the content [24,17]. Conversely, one study did a pre- and post-test design and found an increase in their clinical judgment skills after using virtual simulation[22]. Also, two of these studies examined the use of standard patient, low fidelity simulation, and high-fidelity simulation and found that virtual reality simulation is equally effective or even better[23,26]. Two qualitative studies showed an increase in student clinical skills by using virtual simulation as perceived by the study participants[19,25]. Finally, a study by Aebersold, et al.[20] found that the ability to correctly place the NGT by the intervention group was statistically significant compared with the control group.

Affective

Twelve studies focused their inquiry on the effect of virtual simulation in the participants' affective domains of learning. The areas that were examined by these studies include satisfaction with learning experiences[15], level of confidence[13,17], affective knowledge[18], technology use and satisfaction[27,28,29,15,10], and perceived effectiveness[27,21,15,12,30]. All the studies included have overwhelming positive findings with regard to virtual simulation and affective outcome.

Discussion

This review extracted and summarized twenty-three studies that investigated the effectiveness of virtual simulation in nursing education in improving student knowledge, skills, and attitudes. Twenty-two of the studies have been published in nursing journals while one[15] was published in a medical journal. The studies were conducted in developed countries such as Canada, Ireland, Kuwait, Malta, Portugal, Scotland, Taiwan, Turkey, and United States. The absence of studies using virtual simulation in developing countries for this current synthesis of literature could be due to the high cost of the software and hardware needed for virtual simulation technology. In this review, nine studies focused on the cognitive domain, ten studies that delved on the skills domain, and twelve on the affective domains of learning.

Based on eleven studies that examined the effectiveness of virtual simulation in improving knowledge, five studies showed no significant differences between virtual simulation and their respective control groups. This means that virtual reality simulation was found equally effective compared to the traditional instructional method[9,11], use of case studies[10], hybrid simulation[12], and face-to-face teaching[13]. On the other hand, six studies showed significant differences between virtual simulation and their respective control groups. This purports that virtual reality simulation is more effective than traditional laboratory simulation[27] or without the use of virtual simulation[14,18].

Out of the eight studies that investigated the effect of virtual simulation in the realm of skills, three of these studies found a significant difference in skills performance between those who used virtual simulation versus those that used the traditional mode of teaching the content. Also, two studies showed effectiveness in increasing clinical skills when using virtual simulation. The remaining three of these studies found that virtual simulation is equally effective or even better compared to low fidelity, high fidelity, or standard patient simulations. Thus, all eight studies positively showed improvement in students' clinical skills involving virtual simulation. Similarly, the twelve studies that focused on the impact of virtual simulation on the affective domain of learning of students all showed positive results. Virtual simulation increased students' satisfaction, level of confidence, affective knowledge, and technology use.

There were many variations in the use of virtual simulation in the studies included in this synthesis. This comprises desktop computer simulation[13] and

immersive virtual reality simulation[11]. Future studies should investigate these three specific categories and their impact on the domains of learning. Moreover, there were studies in this synthesis that focused on game-based learning[25,27,29,24]. Because game-based learning is a relatively new approach, there is a need for more research and a more focused study on its effectiveness in nursing education. The study outcomes in this review showed that there is a need for more research studies to be conducted on the effectiveness of virtual simulation in the cognitive domain of learning. There is also a need to conduct studies on how each type of virtual simulation – i.e., desktop computer simulation, immersive virtual reality simulation, and fully immersive virtual simulation environments – affects learning specifically in nursing education. Finally, further research needs to be done on game-based learning and its effect on student learning and nursing education in general.

Limitations of Review

This study only used six online databases which are CINAHL, MEDLINE, PubMed, ERIC, PsychINFO, and ProQuest. There were also no established criteria or standardization for virtual simulation design to be included in the study such as desktop computer simulation, immersive virtual reality simulation, and fully immersive virtual simulation environments. The varied type of virtual simulation design may have impeded the accuracy of the efficacy of virtual simulation in the cognitive, skills, and affective domains of learning. Lastly, the findings and implications of this review may not be generalized to other healthcare professionals as most of the participants were limited to nursing students.

Implications of Findings

This review demonstrates that virtual simulation has overwhelming positive results in increasing the skills and affective performance of students while showing evidence in improving their cognitive domain. Nursing educators, school administrators, policymakers, and other stakeholders need to support future initiatives in the advancement of this technology and its use and possible inclusion in the nursing curriculum.

Conclusions

This review summarized the results of twenty-three studies on the role and effectiveness of virtual simulation on three learning outcomes: knowledge, skills, and affective domains among learners. Studies examining the role of virtual simulation in nursing education show overwhelming evidence supporting a positive impact on student cognitive, skills, and affective, learning outcomes. The establishment and implementation of virtual simulation technology are costly which may be prohibitive in its wider and general use. Future research on the use of virtual simulation is needed to examine the effectiveness of this technology in other health care professions outside of nursing. It might also be valuable to investigate the specific type of virtual simulation (e.g., desktop computer, immersive virtual reality, and fully immersive environment) and its impact on student learning outcomes.

Conflict of Interest – None to declare

Source of Funding – Self

Ethical clearance – Not applicable

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Community Health Nursing Students Identifying Depression in Members of the Community with Diabetes, A Quantitative Approach

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Abstrac

Background: The aim of this study was to improve depression screening, monitoring, and treatment of individuals in community-based programs with co-morbid type 2 diabetes by senior nursing students.

Method: This experimental research utilized the Basic Diabetes Knowledge Test (KAT), Depression Knowledge Questionnaire (MCQ), and the Patient Health Questionnaire -9 (PHQ-9) to measure the depression and diabetes knowledge of students before and after an educational intervention over time utilizing ANOVA.

Results: The main effect of time for KAT and MCQ is statistically significant (F^2=16.74, p<0.0001 for KAT and F^2=10.39, p<0.0001 for MCQ). Adjusted KAT and MCQ scores t-tests were run across the test administrations to assess the PHQ-9 mean test score difference.

Results: Indicate statistically significant differences between groups (t (72) =-2.82, p=0.0063).

Conclusions: The findings of this research should compel nursing faculty to integrate teaching strategies in clinical courses to assist new nurses to adequately identify and refer individuals for depression evaluation and treatment.

Keywords: *community health nursing, type 2 diabetes mellitus, depression, health promotion, comorbidities, referrals*

Introduction

High levels of depression are quite common amongst geriatric patients and can contribute to poorer clinical outcomes.[1] Depression remains a significant public health problem for the elderly population in all sectors of healthcare. The failure to detect and treat depression has been associated with higher cost of care, increase morbidity, suicide, and increase mortality from other causes. Depression is a treatable condition.[2] Clear clinical guidelines have been established in the primary care setting related to pharmacotherapy, psychotherapy, and models of care, but there is very little in the literature related to detection and treatment of patients in the home care and community setting. In a study, Brown et al.[2] found that 13.5% of subjects upon admission to homecare suffered from major depression but few received adequate treatment. Nurses positively impact the health care needs of many people in various community settings. Baccalaureate nursing students are required to enroll in community centered nursing courses with a clinical component. Small groups of students, under the auspices of a faculty member, interact with individuals enrolled in various community-based programs. A major objective of these clinicals is screening and teaching.

The aim of this study was to address inadequacies and improve routine depression screening, monitoring, and treatment of individuals in community-based programs with co-morbid type 2 diabetes by college nursing students. Integrating this important skill into the student nurse's cadre of clinical competencies is vital as students transition into practice. The Training in the Assessment of Depression (TRIAD) intervention indicated that nurses who received specific training for depression screening, identified depressed patients 2.5 times more often and referred them for further evaluation which led to better outcome.[2] Additional depression evaluation training leads to increased confidence amongst nurses in screening, treatment, and ongoing monitoring of patients with major depression. It is well documented that homecare nurses do not feel adequately prepared to perform a depression screening and take on the added paperwork burden of this assessment.[3] Once depression has been identified most agencies do not have the infrastructure to provide comprehensive mental health services and referrals are needed for treatment.

Review of the Literature

Depression is one of the most common mental health disorders and is predicted to be the second leading cause of disability worldwide by 2020. [4] According to Pickett, Raue & Bruce[5,] depression is significantly higher among elderly adults in the community and leads to greater medical illness, functional impairment, and chronic pain. Targeting depression in the community has been found to decrease hospitalization rates.[5]Greenberg, Kessler & Birnbaum described the economic burden of depression as substantial putting the combined direct and indirect costs at $83.1 billion per year.[6] Groups that have been identified to be at high risk for depression include minorities, women, patients with low socioeconomic status, and patients with physical disabilities or co-morbid conditions .[7] Opportunities are often missed to improve mental health and general medical outcomes when mental illness is under- recognized and under-treated. [8] If left undetected or not fully treated, depression is associated with higher costs, morbidity, risk of suicide and mortality from other co-morbid conditions.[9]

Challenges in Managing Co-Morbid Depression and Type 2 Diabetes

The research has indicated that depressive disorders are higher among adults with diabetes than in the general population.[10] The incidence of major depression in patients with diabetes estimated to be 11-31%.[11] The research has indicated that patients with type 2 diabetes have increased rates of mortality, cardiac events, hospitalizations, diabetes related complications, functional impairment, healthcare costs, medical symptoms burden and a decreased quality of life than diabetic patients who are not depressed.[12] According to Katon[13], comorbid depression is associated with poor adherence to self-care regimens, medical symptom burden, and functional impairment. People with type 2 diabetes and major depression are at increased risk of microvascular and macrovascular complications and up to 80% of patients with co-morbid diabetes and depression will experience a relapse of depressive symptoms over a five-year period.[14 3] There is a positive correlated relationship between poorer self-care and depressive symptoms and inversely the higher the self-perception of health, the better the A1c levels.[15 10]

Assessing for Depression

Centers for Medicare and Medicaid Services (CMS), Outcome and Assessment Information Set-C (OASIS-C) (2009) has mandated the use of the Patient Health Questionnaire (PHQ-2) to screen for depression in homecare patients. The PHQ-2 assesses for two very significant signs of depression (including little interest or pleasure in doing things and experiencing a depressed mood) one of which is required to assess significant clinical depression. A score of 3 or higher is the recommended indicator for additional assessment. The PHQ-2 has been validated in three studies in which it showed wide variability in sensitivity. [16] The PHQ-2 is not thorough enough to assess the complex dynamic between diabetes and depression so the PHQ-9 will be utilized as a source for referral. The Knowledge of Depression Test (MCQ) is a 27-item multiple choice knowledge test for depression.[17] The MCQ will be utilized to assess student knowledge about depression. Cronbach's alpha for the MCQ was 0.68, there was an

overall agreement between experts about the relevance of the MCQ to test depression knowledge reliability and evidence for content and convergent validity.

Assessing for Diabetes

The Centers for Disease Control and Prevention National Database states there are 34 million people in the United States diagnosed with diabetes. Males, ages 45 and above represent the greatest number of diabetics. Utilizing the Diabetes Knowledge Test (KAT) faculty will assess the diabetes knowledge of nursing students prior to practice entry and allow faculty to measure and design strategies to integrate knowledge into classroom then clinical settings. [18] The KAT is a 27-item multiple choice test that is both reliable ($\alpha \geq 0.70$), and valid or equal to the SD of n ($p = 0.001$).

Research Questions.

The research question to be answered:

Q1. Is there a change in the nursing students' knowledge to conduct a depression assessment in non-hospitalized individuals with type 2 diabetes mellitus in the community setting utilizing the PHQ 9 scale who receive supplementary depression education as compared to nursing students who did not receive the supplementary depression education pretest, immediate posttest, and in one month?

Research Method

An experimental pretest-posttest two-group design was utilized to evaluate the change in the knowledge of nursing students who assess for depression in non-hospitalized community members with diabetes in the community setting pretest, immediately posttest, and one month follow up after an educational intervention utilizing ANOVA. All senior nursing students enrolled in the community centered senior nursing course (didactic and clinical) were invited to participate in the study utilizing Blackboard and emails. Consent and IRB approval were obtained. The only tool that required permission to use was the KAT and it was obtained. All participants in this study were randomly assigned to a treatment or control group. A group of 87 nursing student participants were randomly assigned to three classes. Diabetes and depression knowledge were measured by the Basic Diabetes Knowledge Test (KAT) and Depression Knowledge Questionnaire (MCQ) before the education module and two times after the education intervention (one administration immediately after and one month after). The intervention group received a 4-hour educational protocol designed to measure the knowledge of students assessing depression in diabetics. The education intervention consisted of an overview on depression and diabetes in class by field experts and included nursing care requirements for diabetes and depression, required medical equipment, medications, social services, legal implications, referrals, and community resources. The focus of this intervention was directed towards the student's ability to integrate data appropriately into a plan of care. A case study was utilized to assess students' abilities to correctly refer patients to treatment. Lastly, students took one administration of the Patient Health Questionnaire -9 (PHQ-9), at the end of the course (3 months from the course start) after reading an actual case study in the community to assess the students' ability to properly refer patients for treatment.

Participants

Senior nursing students at the university have a diverse background and vary in age, gender, religious affiliation, ethnicity, and socio-economic background. For this study, the sample size of 87 nursing students resulted in a confidence level of .99 with a sampling error of 1%. Most students across both groups were female (86.2%), in their 20s (75%); no student had taken courses in depression or diabetes outside of their formal education for nursing.

Instruments

Patient Health Questionnaire (PHQ-9), Basic Knowledge in Diabetes (KAT), Depression Knowledge Questionnaire (MCQ), Demographic Questionnaire

Limitations and Delimitations

The limitations of this study may include: (a) students may have done the surveys quickly because of the strains of an upcoming graduation; and (b) students

may have difficulty remembering school experiences over time. The possible delimitations of this study may include: (a) entry-level nursing students may have prior experience caring for diabetics with depression; (b) diabetes and depression topics were taught in lower-level courses and there may be threads throughout the nursing program in a variety of didactic and clinical courses.

Data Analysis

The observed mean KAT scores prior to the education intervention were 80.6 and 82.5 for intervention and control students, respectively. Similarly, the observed mean MCQ scores were 78.5 and 79.4 for intervention and control students, respectively. Immediately after the education module, KAT and MCQ mean scores for intervention students were 85.2 and 82.4, respectively, compared to the KAT and MCQ mean scores of control students of 92.1 and 88.6, respectively. Although observed mean KAT and MCQ dropped a month after the intervention (82.6 and 79.3 for intervention students and 84.5 and 83.1 for control students), the trend shows that the control group tended to perform better than intervention group. Lastly, PHQ-9 observed mean scores were higher for the intervention group rather than the control group (12.5 and 9.2, respectively).

Table 1. Descriptive statistics for KAT, MCQ and PHQ-9 test administrations

	Before education module			Immediately after education module			1 month after education module		
Outcomes	**M**	**SD**	**n**	**M**	**SD**	**n**	**M**	**SD**	**n**
KAT									
Intervention	80.6	10.3	45	85.2	9.7	45	82.6	11.5	43
Control	82.5	8.4	36	92.1	8.2	33	84.5	8.4	31
MCQ									
Intervention	78.5	8.6	45	82.4	11.1	45	79.3	14.4	43
Control	79.4	8.8	36	88.6	5.9	33	83.1	7.7	31
PHQ-9									
Intervention	-	-	-	-	-	-	12.5	5.0	43
Control	-	-	-	-	-	-	9.2	5.0	31

Repeated measures ANOVA was used to measure the interaction effect of the between-subjects factor of education intervention and the within-subjects' factors of time (i.e., test administrations). An independent samples t-test was used to measure mean differences in PHQ-9 scores between the two groups. When reviewing the intervention effect for both KAT and MCQ scores, there was no statistically significant difference between the test scores of the groups based on the alpha level ($F2=3.80$, $p=0.0553$ for KAT and $F2=4.96$, $p=0.0291$ for MCQ). However, the main effect of time for KAT and MCQ is statistically significant ($F2=16.74$,

p<0.0001 for KAT and F2=10.39, p<0.0001 for MCQ). Therefore, there are significant differences of test scores across the timepoints regardless of group membership. Seventy-four participants (79.6%) reviewed the case study and answered the PHQ-9. Patients with scores of five or greater are customarily recommended evaluation. Of these 74 participants, the average score was 11.1(0-27 scoring available). Based on this average score, it is expected that most participants would refer this patient for evaluation. Sixty-one participants (82.0%) gave the patient in the case study a PHQ-9 score of five or greater and 75.7% would refer the patient for evaluation. Of those 61 participants who indicated a PHQ-9 score of five or greater, 82.0% recommended evaluation. Therefore, most students followed proper protocol when the PHQ-9 exceeds a score of five. Conversely, approximately 18.0% (13 individuals) did not designate a PHQ-9 score of five or greater. Of those thirteen participants, 46.2% recommended an evaluation compared to 53.8% who did not recommend an evaluation.

Repeated measures ANOVA was used to measure the interaction effect of the between-subjects factor of education intervention and the within-subjects' factors of time (i.e., test administrations). An independent samples t-test was used to measure mean differences in PHQ-9 scores between the two intervention groups. An alpha level adjustment was utilized to account for multiple significance tests on the same dataset (i.e., 0.05 original alpha level divided by 3 hypotheses to yield a corresponding alpha level of 0.0167). Of the 51 students enrolled in the education module, 84.3% (n=43) took all three test administrations of KAT and MCQ. 86.1% (n=31) of the 36 control students took all three administrations of KAT and MCQ.

Sphericity was evaluated for KAT and MCQ scores via a chi-square test for equality of variances of the experimental groups across the three timepoints. Therefore, the null hypotheses were that the dependence of the scores from each administration is equal for each group. The alternative hypotheses were that these variances are not equal. The assumption of sphericity is upheld when the null hypotheses was accepted. For this study, sphericity for KAT and MCQ is upheld ($\chi 2 = 2.69, p = 0.2603$ for KAT and $\chi 2 = 5.31, p = 0.0702) \chi 2 = 5.31, p = 0.0702)$.

When reviewing the intervention effect for both KAT and MCQ scores, there was no statistically significant difference between the test scores of the groups based on the alpha level (F^2=3.80, p=0.0553 for KAT and F^2=4.96, p=0.0291 for MCQ). However, the main effect of time for KAT and MCQ is statistically significant (F^2=16.74, p<0.0001 for KAT and F^2=10.39, p<0.0001 for MCQ). Therefore, there are significant differences of test scores across the timepoints regardless of group membership. Lastly, the interaction effect of the intervention and time is not statistically significant (F^2=2.19, p=0.1161 for KAT and F^2=1.27, p=0.2837 for MCQ). Thus, changes in test scores across timepoints are not dependent on group membership. Figures 1 and 2 graphically display the adjusted means for the two tests.

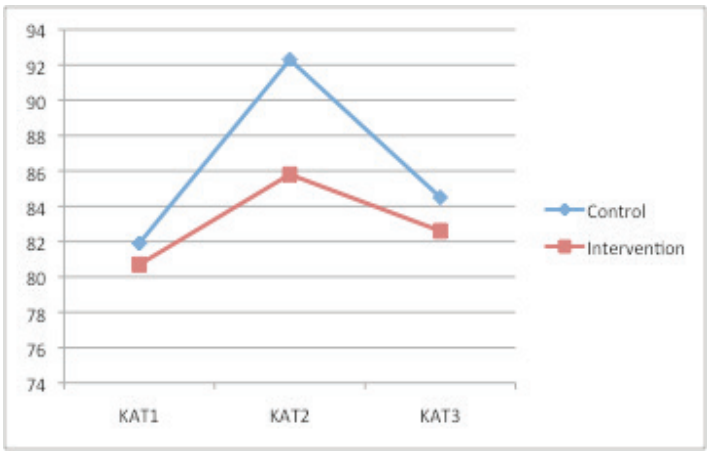
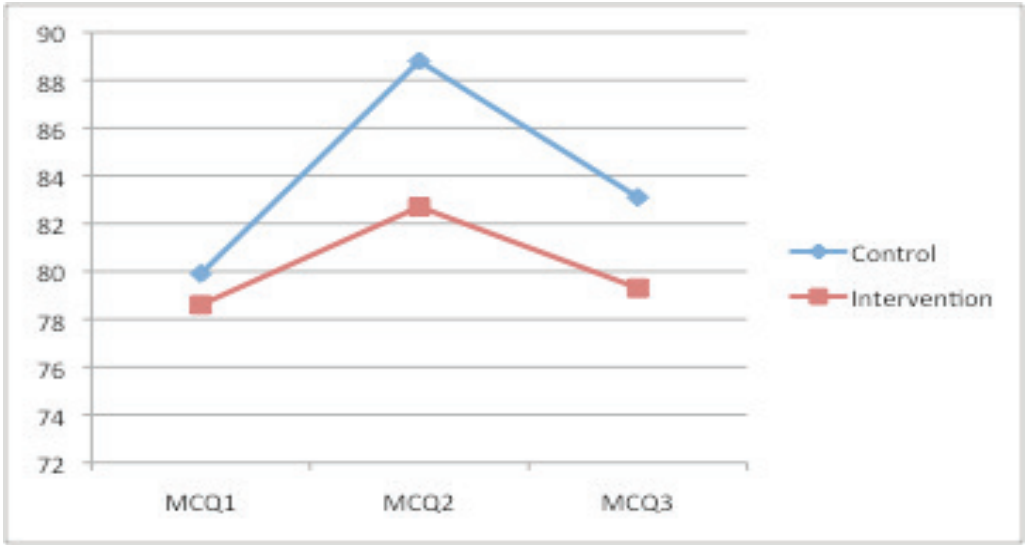


Figure 1. Adjusted KAT means across the three test administrations

Figure 2. ***Adjusted MCQ means across the three test administrations***



t-tests were run to assess mean test score difference on the PHQ-9. Results indicate statistically significant differences between groups ($t(72)$=-2.82, p=0.0063), whereby intervention students tend to score higher than control students.

Table 2.

Refer for Evaluation by PHQ-9 Score				
	PHQ-9 Score of 5 or Higher			
Refer for Evaluation		Yes	No	Total
	Yes	82.0% (50)	46.2% (6)	75.7% (56)

Seventy-four participants (79.6%) reviewed the case study and answered the PHQ-9. Patients with scores of five or greater are customarily recommended evaluation. Of these 74 participants, the average score was 11.1(0-27 scoring available). Based on this average score, it is expected that most participants would refer this patient for evaluation. Sixty-one participants (82.0%) gave the patient in the case study a PHQ-9 score of five or greater and 75.7% would refer the patient for evaluation. Of those 61 participants who indicated a PHQ-9 score of five or greater, 82.0% recommended evaluation. Therefore, most students followed proper protocol when the PHQ-9 exceeds a score of five. Conversely, approximately 18.0% (13 individuals) did not designate a PHQ-9 score of five or greater. Of those thirteen participants, 46.2% recommended an evaluation compared to 53.8% who did not recommend an evaluation.

Implications, Recommendations, and Conclusions

The findings of this research study indicated a significant change in the depression and diabetes knowledge bases of nursing students after an educational intervention. The intervention utilized in this study has resulted in significant results. The nursing students' knowledge base about diabetes and depression were measured utilizing the same tools (KAT, MCQ, PHQ 9) that other healthcare professionals utilize to measure knowledge in non-nursing students. This approach reinforces the need for a multidisciplinary approach to educating healthcare professionals. The unique aspect of this research was the utilization of a case study

to observe if nursing students would appropriately refer potential patients to needed additional resources. Educators need to consistently bridge the gap between the classroom and the clinical arena to assess educational outcomes prior to as well as at time specific time frame during clinical practice. This will assure nursing professionals meet the needs of potential patients while reassessing nursing performance and competency. There are direct implications for nursing faculty to review and include a plethora of instructional modalities related to managing patients in with co-morbidities (e.g., diabetes and depression) that will help transition students safely into practice. Patient outcomes can be positively affected by all members of the healthcare team understanding and learning to manage the complexities of these comorbidities that are both very complex but highly treatable with competent and well-coordinated intervention, management, and ongoing monitoring.

Ethical Clearance: Ethical and IRB approval was obtained from Long Island University, New York, U.S.A.

Source of Funding: No funding requested for this study.

Conflict of Interest: None

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Problem Solving in the Limitations of the Implementation of Online-Based Emergency Nursing Clinical Practice: A Phenomenological Case Study

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Abastract

During 2020, the world has been suffering many things that caused by a virus that lately becomes a global pandemic that called as Corona Virus Disease or Covid-19. It affects many aspects of human life especially in the field of education. One of the effects is the changing of learning system from offline to online. The offline learning system requires direct interactions among teacher and students such as having classes, discussions, and many things face to face. Meanwhile, the Online learning system requires many things to be applied by using laptop, computer, or smartphone through internet network. In this case, the changing of these learning systems are literally generates problems among teachers and students especially in the application of Emergency Nursing Clinical Practice. In order to solve this problem, the teacher and students need to get involved to holistically see the problems that occur. In addition, the design that is used in this study is A Case Study with Qualitative Approach and the research subjects are lectures and students who are involved in online learning process. Moreover, the results of this study showed that it has been found that there are five (5) sub themes that bring on two (2) main themes that is the limitation within the implementation of Emergency Nursing Clinical Practice and the alternative solutions during online –based learning of Emergency Nursing. In summary, the students feel unsatisfied and a little disappointed towards the subject of clinical practice through online learning. The efforts and modifications are needed in order to anticipate the problems that might be occur during the online learning processes. A good cooperation and coordination are needed among teacher and students so that it can maximize the process of online learning.

Key Words: *Limitation, Clinical Practice, Emergency Nursing.*

Background

The threat of the COVID-19 pandemic that has knocked down the world since the beginning of 2020 has caused various universities in the world changing their teaching and learning methods. Many institutions choose to turn face-to-face into online-based activities, including the fields of teaching and learning, face-to-face, laboratories and even clinical practice [1]. The response of higher education in prevailing online education is one solution to reduce the spread of COVID-19 around the world [2]. However, several problems appear during its implementation, especially for nursing students who are going to perform clinical practice of emergency nursing.

The implementation of emergency nursing clinical practice for nursing students is a must, because it greatly affects students' skill [3], but the implementation is risky for the students themselves if it is implemented directly in the situation of pandemic like this. The implementation of online learning that are not ready has negative impacts such as boredom due to too many tasks and limited facilities[4]. The existence of this phenomenon indicates

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that it is necessary to compile a study to examine the implementation of online emergency nursing clinical practice seen from the point of view of students and teachers.

Material and Methods

Study Design

A qualitative approach is used to holistically obtain from both the student and the teacher in emergency nursing clinical practice. Experiences that are complex, continue, and interrelated with each other so that it can produce certain knowledge [5].

Research subject

The research subjects of this study are nursing lecturers and students who have run or have participated in online-based emergency nursing clinical practices. The participants of this study consisted of 8 people including of 5 nursing students and 3 lectures who are basically teach emergency nursing. The participants have experienced online emergency clinical practice. The research is conducted in the nursing colleges around Malang Raya, including Malang City, Malang Regency and Batu City as well as several surrounding areas.

Instrument

The researcher is the main instrument in qualitative research by exploring the key words in the conversation as well as examines and explores the entire space of conversation orderly and freely[6].

Data Collection

A semi-structured interview techniques and in-depth interview are used in this study to explore the information of the participants.

Trustworthiness

This study was conducted double-check to reduce errors in cognition and increase credibility. The panel discussion was expertly done in analyzing all the data that has been obtained by the researcher [6].

Findings

The Eighth participants involved in this study consisted of three lectures and five nursing students who are involved in emergency nursing clinical practice obtaining the following data:

Table of Themes and Sub Themes

No	Themes	Sub Themes
1	Limitations in Online Clinical Practice of Emergency Nursing.	Not satisfied with the current learning methods.
		Weaknesses of the implementing an online-based clinic practice of emergency nursing.
2	Alternative solutions to the problems during online-based learning of emergency nursing course	Mature preparation in implementing online clinical practice of emergency nursing.
		Mature preparation in implementing online clinical practice of emergency nursing.
		Modification of online clinical practice of emergency nursing.

Theme 1: Limitations in Online Clinical Practice of Emergency Nursing.

The theme was about limitations in online clinical practice of emergency nursing. This theme consists of two main themes, namely (1) dissatisfaction with current learning methods and (2) the weaknesses in implementing clinical practice using online methods.

Sub-theme: Not satisfied with the current learning methods.

Lack of satisfaction of participants in implementing online clinical practice can be reflected in the feeling of sadness of the participants when they have to do clinical practice directly. In addition, the participants felt annoyed because they experienced disruptions during the implementation of an online clinic practice of emergency nursing. This is in accordance with what the participants said as follows:

"*Okay, I actually feel sad and unsatisfied; I don't know what to say".* (P2)

The limitations also arise due to economic factors that lead to feelings of sadness that emerged by the respondent. This is as participant says as follows:

"There is a problem like lack of internet quota and so many more economical limitation factors and the students basically also come from different social family status that affects their capability." (P 1)

These feelings of disappointment lead to the uncomfortable feelings that showed up in the participants. Feelings of discomfort and concern about something bad that might be occur, as stated by participant 6 as follows:

"I'm happy with online learning, but I also confused if it comes to offline learning because I haven't practice to do it directly, and I don't know what to do." (P6)

Sub-theme: Weaknesses of the Implementing an Online-Based Clinic Practice of Emergency Nursing.

The limitations of clinical practice implementation occur due to several factors such as the need for adaptation to the implementation of online clinical practice of emergency nursing. This is as stated by Participant 1 as follows:

"*For me, the challenge is because we are mostly illiterate to technology. In the beginning of final exam last semester, we were briefing by the college technician for a week that fully focus on how to study in new models of o class. We have to be able to adapt first because there are so many new programs that is difficult to understand, so it becomes a little complicated."* (P1)

All these limitations require intensive assistance one by one to reduce the negative impact of the implementation of online clinical practice of emergency nursing. This is as stated by participant 2 as follows:

"Towards the competencies, I do video call one by one on every student under my supervision. It is correct that the effort is more like intensive guidance to the students related to the emergency nursing clinical practice." (P2)

The preparations that participants need to make to reduce the various kinds of negative impacts of online-based learning of emergency nursing clinical practice are to facilitate students to ask as broadly as possible. This is as stated by participant 5 as follows:

"Give the students a chance or capability for asking questions not only in the process of learning activities but also in the outside of the learning activities such as asking question through private message." (P5)

Theme 2: Alternative Solutions to the Problems during Online-Based Learning of Emergency Nursing Course

Alternative solutions to the problems obtained during online-based learning of emergency nursing. This theme consists of three sub-themes, namely 1) Anticipating problems that occur in online-based learning of emergency nursing clinical practice, 2) Careful preparation of online clinical practice participants and 3) Modification of online clinical practice of emergency nursing.

Sub-theme: Anticipating the problems that might occur in online-based learning of emergency nursing clinical practice

Anticipation taken by the participants to overcome the implementation of online- based learning of emergency nursing clinical practice by preparing the best possible clinical practice. Some preparations such as finding alternative solutions to the problems that arise during online practice. As stated by participant 1 as follows:

"We then cooperate it with XL card company so we buy as much as 300 XL sim card and give it to the students and then in the next month our college provide 20 Giga Byte (GB) per each student." (P 1)

In addition to the anticipation of technical constraints, it is also necessary to add coordination for sharing perceptions in the implementation of online-based learning of emergency clinical practices as stated by participants 8

"…Then, the next challenge is how to communicate and coordinate with our team and the teacher as well. Sometimes we have to equalizing time to meet that would be difficult because are in the different places." (P8)

The efforts to seek participants' support in supporting online-based learning of emergency clinical practices are also needed, as stated by participants 2

"…Beside of emergency nursing clinical practice, it can also use as other clinical practices, especially in the application of emergency nursing!" (P2)

Sub-theme: Careful preparation in implementing online clinical practice of emergency nursing

Adaptation of learning properly is one way to improve the quality of online-based courses. Prepare teaching materials that will be done as quickly as possible as it is done by the participants 2 as follows:

"Then we also have to prepare the competencies as resemble as the real one so that the result of the students competencies are the same as in Emergency Unit. So it started from the preparations of case study inform of video, and then we divide it inform of question case (fin net)/questions, and we have to make a tutorial related to correct RJP. Actually the most difficult is we should prepare the assessment system."(P2)

The teacher can make another preparation by preparing one semester lesson plan for online class as stated by participant 1 as follows:

"It starts from preparing a semester lesson plan for online learning activities and one semester lesson plan for offline learning activities. The one that use for offline is focused on clinical practice and the one that used for online is focused on the material." (P1)

Sub-theme: Modification of online clinical practice of emergency nursing

Conventional clinical practice cannot be carried out during the COVID-19 pandemic, so specific preparations and modifications are required. A specific modification is like achieving the learning outcomes that have been determined as follows:

"I think there is no preparation, because after examination we had a holiday for 3 weeks until graduation. So, there is no preparation at all. We just let the learning process flow; if we need the materials for learning activities then we search for it. Otherwise we just ask for the information from classmates." (P 2)

The modification within the clinical practice is by developing triggers provided by the teachers to update science. This is as stated by participant 8 as follows:

"Beside the triggers given by the teacher, we should also develop those triggers to update our knowledge, especially we can also access current international journal in handling Covid-19.We also need to explain the information from it." (P8)

With the modification of clinical practice, students are expected to be more open to the teachers. Teachers hope that they can get good materials like stated in the following statement:

"Ensuring that the students get the correct and proper material and practical, but in my point of view as supervisor we definitely expect that we can ensure the best for the students because especially in giving an intensive guidance related to the implementation of the clinical practice of emergency nursing." (P7)

Discussion

Online-based clinical practice has a positive side as it has stated by the respondents. As the likelihood of participants gets infected by COVID-19 is low. In addition to flexibility and the use of technology also plays an important role in clinical practice. Online-based learning is a flexible learning method in determining time and place [8]. Online learning creates a learning environment that suits students' preferences and saves time, efforts, and resources in student learning activity[9]. However, online-based learning clinical practice has a negative impact.

The first theme in this study is the limitation in online clinical practice of emergency nursing. Sub theme that has been obtained is less satisfied with current learning methods. The target competencies of emergency nursing clinical practice are cognitive, aggressive and psychomotor. This target can be achieved by practicing directly in the clinical environment [10]. Direct clinical practice has been proven in increasing the competence of the students and it is able to prepare the students to work in the clinic later on [11]. Nevertheless, it becomes a problem during the pandemic of COVID-19 since the students cannot practice in the clinic directly. The implementation of online-based clinical practice is of course has many challenges faced by both teachers and students [12].

The implementation of online-based emergency nursing clinical practices has caused dissatisfaction for both teachers and students. This dissatisfaction occurred due to various constraints such as limited signal, monotonous methods, and various economic limitations that the respondents had. This limitation arises from unequal internet access in Indonesia. Limitations also showed because of the lack of supporting technology for online-based clinical practice [13].

Respondents' disappointment was perceived due to the limitations of online-based learning methods. Limitations that showed up due to the increase of knowledge and competence that participants can get when practicing offline, but it must be online. All these limitations result effectuate the students to be unable to achieve the existing competencies [3, 9]. So it requires mature preparation for the implementation of online-based courses. Participants made various preparations starting from the preparation of the Semester Learning Plan, making an appropriate online learning materials and learning methods for the students. Both technical and non-technical preparations are needed to support the online learning process considering the process is relatively new in Indonesia[14].

The second sub-theme is the weakness of online-based emergency clinical practice. Although many disappointments arose due to the implementation of online-based clinical practice of emergency nursing, participants were aware of the situation regarding to the pandemic of COVID-19. This disappointment arises because of many weaknesses. Weaknesses such as limited knowledge of teachers or students in the field of technology are also quite obstructed [15]. Other limitations are such as students' difficulties in nursing practice independently and the demands of assignments in distance learning as well as limitations in direct discussion. So it requires intensive assistance between teachers and students. Physical closeness is still needed by many students in learning which affects their individual, instructional, and external factors in maximizing the learning process [16].

The second theme in this study is alternative problem solving during online-based emergency nursing courses. This theme consists of three sub-themes, first is the anticipation of problems occur in online-based clinic practices of emergency nursing. Anticipation that is necessary with technical preparations such as providing internet quotas for students. In addition, good communication and coordination among parties is also needed for students, lecturers, government, and other parties involved in these online courses [17].

The second sub-theme is the mature preparation in clinical practice. This mature preparation including technical modification, material preparation, questions, and lesson plan. Good and thorough preparation greatly affects the learning outcomes to be achieved. Moreover, distance learning requires the development of a high-quality online learning community that includes learning methods. Professional guidance is very important to

produce professional nurses in online-based learning [18].

The third sub-theme is modification of online clinical practice of emergency nursing. Special preparations and modifications are needed to improve the skills of learning participants. Modifications by providing emergency case triggers are needed to increase student knowledge. It is hoped that the adoption and modification of nursing learning can increase students' knowledge, self-efficacy, and motivation[19]. Moreover, with such modifications, students' thoughts are expected to be more open in learning and getting a better material.

One of the preparations for implementing an online-based emergency clinical practice is assistance to the students. The broadest possible assistance is needed to improve the competencies that aimed to be achieved [11]. Loosening government regulations as well as online learning training is needed for lecturers to be able to improve the ability to deliver knowledge through online-based learning[20].

Conclusion

Distance learning makes students and teachers perceive less satisfied, even disappointed with the expected results. This phenomenon occurs especially in courses with learning outcomes in the form of clinical practice. In certain areas, clinical practice is still not possible to be implemented, consider the high number of Covid-19 survivors. To prevent such thing, good cooperation and coordination between learners and teachers is needed. A modification of online clinical practice learning system is also expected to fulfill the course competencies.

Ethical Clearance: Ethical clearance approval was carried out at the STIKES Panti Waluya Malang institution of ethics on November 11, 2020 with number 70/785 / 407.206 / 2020.

Source of Funding : The source of funding for this research is internal STIKES Panti Waluya Malang.

Conflict of Interest : Nil

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 DOI Number: 10.37506/ijone.v13i3.16313

Be Wide Awake: Aggressiveness on Children

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Abstract

Background of the Study: Aggression is one of the most prevalent behavioral aspects in children which cause a lot of concern in present days. Reactively aggressive children do not seek to meet goals through aggressive behavior. Instead they react negatively to perceived or actual threats and are easily irritated.

Objective: The study examines the aggressive behavior among school children attending higher primary school in selected village, Mangalore.

Methods: A non-experimental descriptive design was chosen to assess the aggressive behavior among children by using a Modified Overt Aggression Scale and total of 60 samples were selected using the Snowball sampling technique.

Results: The findings clearly revealed that 48 subjects (80%) were having mild aggressive behavior. With regard to the association of demographic variables, religion, birth order, occupational status of parents, family income and parents opinion regarding aggressive behavior had statistically significant association with the aggressive behavior among children attending higher primary school at $p<0.05$ level.

Conclusion: The study infers that adolescents have considerable level of aggressive behavior. It is important to indicate that aggression is a problem which continues through the adolescents and adulthood and hence it is just not a problem at that point of time.

Keywords: *Aggressive behavior, Children, Higher primary school, Modified overt aggression scale, Snowball sampling***.**

Introduction

Sigmund Freud states that the tendency of aggression is an innate, independent, instinctive disposition in man. It constitutes the most powerful obstacle to culture. Most of the young children will be naughty and impulsive in nature; it is naturally normal. However some children have extremely difficult and challenging behavior that are outside the norm for their age. The common aggressive behaviors seen in children are physical aggression, verbal aggression, aggressive against property, auto aggression. The belief that aggression is more of a problem of the industrialized nations is falling short of space as the developing ones catching up with them. Aggression not only spoils school environment but also is a risk factor for future delinquency.

Aggression refers to behavior between members of the same species that is intended to cause humiliation, pain or harm, antisocial behavior, depression, anxiety, dissociation and other trauma related symptoms as well

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as problems in emotion regulation.

Aggression during early childhood is not taken seriously and is often considered as a part of growing. It can be conceptualized as a personality trait. In other words aggression can be inherited to the individual. It is a symptom with or without intension or adaptive function, which reflect a behavioral pattern that can be attributed to a syndrome.

Over the past 50 years, rate of maladaptive aggression and antisocial behavior have increased in frequency and severity among children and adolescents within the world. Victimization rates for murder and non-negligent manslaughter rise with age during the developing years. When 21 years trend are compared, children but 13 years old have risk of violence about 2 per 10000 children [2].

WHO(2020) has reported that youth violence has taken a stride among 10-29 years old and peaks during late adolescence and early adulthood. It covers a number of acts ranging from intimidation and physical combat to severe sexual and physical attack on murder. Worldwide, between young people aged 10 and 29, some 200 000 homicides happen annually, which is 42% of total homicides worldwide each year. The fourth leading cause of death in persons aged 10-29 is homicide, 84% of which involve men.[10]

Many studies shown that the prevalence of aggressive behavior among children are increasing day by day. A cross-sectional study (2014) conducted in North Karnataka among 347 students had showed that 69.5% of children were physically aggressive and 71.5% were verbally aggressive[6]. The data collected from rural area of West Bengal pointed out that 66.55% of the children were physically aggressive and among them 75.8% were boys and 58.2% girls.

Another study among 402 secondary school students in South Nigeria pointed out that 69.9% students had antisocial behavior and among them 77.7% were males and 62.2% were females[5]. Bettina.F.Piko(2006) findings suggested that aggression was an important predictor of children's psychosomatic health, self-perceived health and health behaviors. In boys, physical aggression was a predictor of substance use and other health behaviors, whereas in girls anger was the most important influencing factor of psychosocial health[8].

Aggression has become one of the common problems seen in the children of present generation. Nearly three-quarters of children are showing aggressive behavior. Hence, investigators conducted this study among higher primary school children in order to identify the level of aggressive behavior among them.

Statement of the Problem

A study to assess the aggressive behavior among children attending higher primary school in selected village, Mangalore.

Objectives of the Study

· To assess the aggressive behavior among children attending higher primary school.

· To find out the association between aggressive behavior among children with selected socio-demographic variables like age, religion, sex, birth order, education, occupation, family income, type of family.

Materials & Methods

A non-experimental descriptive design was adopted for this study and sixty samples were selected based on snowball sampling method of those who fulfilled the inclusive criteria such as age group of 9-16 years and who were willing to participate in the study. The purpose of the study was explained to samples and a formal informed consent was obtained from them.

After recruiting the participants for the study, data was collected from the subjects using the Modified overt aggression rating scale.

Instruments used:

· Part I: Demographic variables such as age, sex, religion, occupation of parents, education of parents, family income, type of family, birth order of the child.

· Part II: Modifed Overt Aggression Rating Scale.

It consist of total 20 items under 4 sections- Verbal aggression, Physical aggression, Aggression against property and Auto aggression. A score of '0' mark will be given for the answer "NEVER", Score of '1' will be given for the answer "RARELY", a score of '2' will be given for the answer "SOMETIMES" and a score of '3' will be given for the answer "OFTENTLY".

Scoring Interpretation:

Score	Level of aggression
0-15	No aggressive behavior
16-30	Mild aggressive behavior
31-45	Moderate aggressive behavior
46-60	Severe aggressive behavior

The duration of data collection was 10 minutes for each participant. On the completion was data collection, in view of improving positive behavior among samples, a health education pamphlet regarding tips to reduce aggression was distributed. The collected data was analyzed using descriptive & inferential statistics.

Results

Description of demographic variables

The analysis of demographic variables showed that among the children attending higher primary school, 40(66.7%) within the age group of 9-12 years, with equal number of 30(50%)males and 30(50%) females and majority 50(83.3%) were Muslims. With regards of the birth order 22(36.7%) for both second and third order. Majority 44(73.3%) fathers and 50(83.3%) mothers were having primary education. Half of samples fathers' 30(50%) were doing private job and 38(63.3%) of mothers were homemakers. 26(43.3%) had a family monthly income of less than Rs.10,000/-to Rs.15, 000/- and 28(46.7%) from nuclear family. More than half of samples parents responded that 34(56.7%) children were having aggressive behavior

Assessment of level of aggressive behavior among higher primary school children

The study results recorded that (***figure 1***) majority 48(80%) higher primary school children had mild level of aggression, 4(6.7%) had moderate level of aggression and 8(13.3%) did not have aggressive behavior.

The mean score of verbal aggression was 39±2.68, physical aggression 39±5.54, aggression against property 31.4± 16.89 and auto aggression 24.6±20.15. (***table 1***)

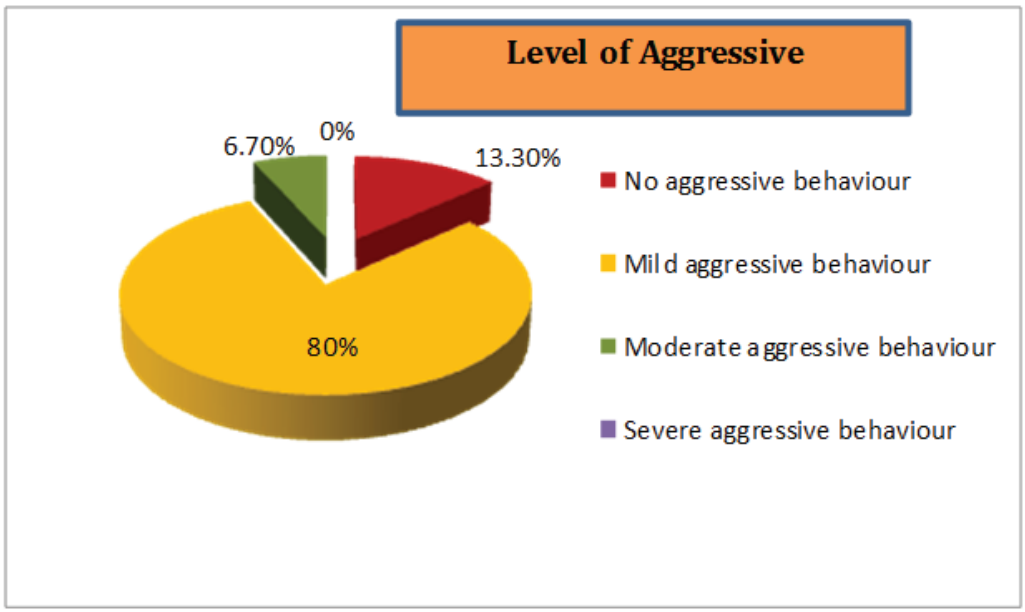

Figure 1: Percentage distribution of level of aggressive behavior among higher primary school children

Table 1: Area wise distributions of mean percentage score and standard deviation of aggressive behavior.

Behavior	Mean	Standard Deviation
Verbal aggression	39	2.68
Physical aggression	39	5.54
Aggression against property	31.4	16.89
Auto aggression	24.6	20.15

Association of level of aggressive behavior with selected demographic variables

With regard to the association of demographic variables, religion, birth order, occupational status of parents, family income and parents opinion regarding aggressive behavior had statistically significant association with the aggressive behavior among children attending higher primary school at $p<0.05$ level.

Discussion

With reference to table :1 , **Oana Mitrofan et al (2014)** collected data from forty-seven British children aged seven-eleven years by using semi structured interview method. The study result showed that 76% of boys and 60% of girls were verbally aggressive with poor peer relationship and prosocial behavior. Children in the lowest income group (mean 0.96, SD 1.88) scored higher than others (mean 0.04, SD 0.14) on use of Weapons ($p < .05$)[7].

Evidence has suggested significant negative correlation between physical aggression,verbal aggression ,anger, hostility with psychological wellbeing($p \leq 0.01$) [3].

On support to figure 1, **Nooshin Salomi et.al (2019**) concluded that 29% and 10% of the students had moderate and high levels of aggression, respectively.[9]

A study done among 100 Annamalai University students (2017), showed that mean score of boys (77.28) in respect of aggression behaviour was more than the mean score of girls (65.20).[1]

Ana Kozina (2014) concluded that the variables related to socio-economic status, spare time activities and parental activities are significant predictors for aggressive behavior among children.[4]

Conclusion

Aggression negatively affects student's academic achievement, emotional, mental as well as psychological development and academic performance, schools environment and if not controlled early, it may cause incidents of violence in the future too. The responsively aggressive children are significantly more anxious than non-aggressive children.

Limitations & Recommendations:

The study is limited in the form of a research design, sample chosen and measures undertaken. The current study was limited to only one village area in South India and sample is not nationally representative. Further study will focus on a larger sample size. Also, a comparative study will focus among girls and boys aggressive behavior. Linking positive psychology with aggressive psychology may also lead to certain forces variables which are largely ignored in existing scientific literature. These studies will help counselors and psychotherapists integrate a strong intervention into anger management programs.

Source of Support: Nil

Conflict of Interest: None declared

Ethical Clearance: The Ethical Clearance was obtained from institutional ethical review board. The samples were explained about the study purpose and confidentiality was maintained throughout the study.

Acknowledgement: We would like to thank the College Faculty & participants of this study for their cooperation and support throughout the study.

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Enablers and Barriers of Continuous Professional Development (CPD) Participation among Nurses and Midwives

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Abstract

Continuous Professional Development (CPD) is crucial in healthcare professions that facilitate and embrace life-long learning, ensuring knowledge and skills to be constantly progressive and responsive to dynamic health care demand. This study investigate the enablers and barriers of Continuing Professional Development participations among nurses and midwives in Brunei Darussalam. A cross-sectional study using self-administered online survey through Qualtrics software were conducted on all eligible nurses and midwives (N=604) working at all public hospitals and Health Centers in Brunei Darussalam. Availability of CPD sessions with attractive topics (90.6%); support from the nurse/midwife managers (87.9%) and ease of CPD registration (83.9%) was highly identified as enablers. Female and younger participants reported significantly higher support to undertake CPD. Barriers to CPD participation included last minutes changes to work schedules (89.4%); understaffing (83.1%); role as carer at home (78%); shift work (74.8%) and CPD affect time outside work (70%). The study results can be used for developing strategies and framework to improve CPD participation. Specific CPD hours was required for maintenance of registration as nurse, hence future study may consider the relationship of CPD and competency skills.

Keywords: *Continuous Professional Development, Nursing, Brunei, Midwifery.*

Introduction

Continuous Professional Development (CPD) is an important aspect of nursing and midwifery in its capacity to facilitate nurses and midwives to keep abreast with the current evidence-based practice. CPD is vital not merely for its contributions in the preservation, advancement and expansion of nursing knowledge and practices, but also the growth of personal and professional qualities essential to the nursing and midwifery professions[1]. There are several means to CPD such as self-initiatives by reading current research papers, informal sharing session with colleagues through case conferences and discussion, and formal session as seminars, workshops,

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and conferences[2]. The dynamic, rapidly challenging and changing developments in global nursing and midwifery require nurses and midwives to embrace CPD to enhance life-long learning. CPD, in addition to expertise and practice, is essential for sustaining practical competencies in every working career as it ensures quality and safety of service provision to the public[3]. CPD is a lifelong learning process in which employees continuously develop information, skills, and experience beyond what they already know[3]. In Brunei, nurses and midwives are obliged to comply with a minimum number of CPD points annually[4]. Nurses and midwives will use CPD to preserve, strengthen, and extend their skills and expertise, as well as build the personal and professional values they will need during their careers[4].

CPD within a nursing and midwifery context is the process by which ongoing activities and reflections were engaged that eventually result in complete control over an individual's personal learning and development[1]. It is also strongly associated with competency practice where; competency can be maintained and assessed through CPD, respectively. Nurses and midwives are an integral part of client care and play an essential role in improving the hospital's quality of care[5]. Globally, CPD structures have progressed to include a wide variety of training opportunities that represent the demands of today's healthcare practitioners employed in various and integrated healthcare institutions. In several nations, CPD has shifted from single-professional instructional designs and formal moralistic requisites to academic frameworks that are creative, diverse and student centered[2]. Others considered, CPD is an overlooked aspect of the health education spectrum. In which, organizational bodies are responsible in developing CPD in the form of accreditation standards points accumulated, even considering CPD as part of the mandatory obligations towards professional competencies. For example, in the United Kingdom, nurses and midwives are required to demonstrate their CPD in order to renew their registration. The requirement of 35 hours of CPD over a three-year cycle, as well as a link to the ethical code of nurses and midwives[6].

Methods

Objectives and significance

The objectives of this study were to examine the enablers and barriers which affect the participation in continuous professional development (CPD) among nurses and midwives in Brunei.

Research Design, setting and sample

This is a cross-sectional study conducted on nurses and midwives working in all four public hospitals and fourteen health centers in Brunei to examine enablers and barriers to continuous professional development (CPD). The inclusion/exclusion criteria are illustrated in Table 1.

Table 1. Inclusion/exclusion criteria

Inclusion Criteria	Exclusion Criteria
Registered nurses and midwives	Intern staff nurses
Working on shift-duty and office hours	Working in private clinics

Power calculation was employed to achieve precision (power) of 5% (d=0.05) on a population size of 2,300 nurses and midwives in Brunei Darussalam with an expected proportion of 50% at 95% confidence level. A total sample size of at least 500 is required for the study.

Study Instrument

The questionnaire consists of two sections and a total of 14 items. Section A is on sociodemographic data (e.g., gender, age, marital status, education level, years in service and at the current workplace, place of work,

and designations). Section B assesses the knowledge of CPD using True, False, or Do not Know responses. The perception of the barriers for CPD and competency skills were explored on a 4- Likert points.

Data collection

The gatekeepers (nurse managers from each study settings) distributed the survey link to all eligible respondents to the study. Participants were given two weeks to complete the online survey. Reminder was sent twice to increase response rate: after one week and three days before the end of the second week.

Data Analysis

Data were analyzed using R Studio version 4.0.2. Descriptive statistics were computed for sociodemographic data and prevalence of enablers and barriers. Chi-Square test was performed to determine the association of sociodemographic data to the prevalence of enablers and barriers to CPD.

Ethics

Ethics clearance and approval was obtained from the joint committee of the Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah (PAPRSB) Institute of Health Sciences Research Ethics Committee (IHSREC) and the Medical and Health Research and Ethics Committee (MHREC) of the Ministry of Health Research (ERN: UBD/PAPRSBIHSREC/2020/36).

Results

Sample characteristics

604 nurses and midwives from hospital and community settings participated in this study. Over 90% of the recruited were female and aged more than 30 years old. Three quarters of the respondents held a diploma or below. Over 80% had been working as a nurse for more than 10 years. 65% worked in shift duty, while 35% worked office hours. About 20% were assistant nurses and midwives. About 10% held managerial posts. Staff nurses made up the majority of the respondents (69%)

Table 1: List of Enablers and Barriers on promoting Continuous Professional Development among nurses and midwives (Response = "Agree" only) (n=604)

			Gender		
Enablers	**n**	**%**	**Female(n=548) n (%)**	**Male (n=56) n (%)**	**P-value a**
The CPD session available and topics are attractive.	547	90.6	500 (91.2)	47 (84.0)	0.075
I feel supported by my manager to undertake CPD.	531	87.9	488 (89.1)	43 (76.8)	0.023
The CPD registration system is easy.	507	83.9	460 (84.0)	47 (84.0)	0.950
I have adequate accessibility to my CPD sessions.	474	78.5	434 (79.2)	40 (71.4)	0.178
My facilities are adequate to provide CPD.	468	77.5	425 (77.6)	43 (76.8)	0.097
Barriers					
Last-minute changes to work schedules make it hard to participate in CPD.	540	89.4	487 (88.9)	53 (94.6)	0.181
Understaffing means it is too hard for me to participate in CPD.	491	81.3	446 (81.4)	45 (80.4)	0.097
My role as a carer at home (for a child or another family member) makes it difficult for me to participate in CPD.	471	78.0	431 (78.7)	40 (9.3)	0.214

Cont... **Table 1: List of Enablers and Barriers on promoting Continuous Professional Development among nurses and midwives (Response = "Agree" only) (n=604)**

Shift work makes it hard for me to attend CPD.	452	74.8	411 (75.0)	41 (73.2)	0.087
CPD affects my time outside of my nursing/ midwifery work.	423	70.0	381 (69.5)	42 (75.0)	0.394
I am too busy to attend CPD.	181	30.0	152 (27.7)	29 (51.8)	<0.001
It will be difficult to implement competency assessment skills for CPD.	172	28.5	146 (26.6)	26 (46.4)	0.008
I am not confident because I am not ready to be assessed on my competency skills.	128	21.2	115 (21.0)	13 (23.2)	0.007
My ward environment does not foster a culture of CPD learning.	115	19.0	97 (17.7)	18 (32.1)	0.002
I have a lack of motivation to attend CPD sessions.	108	17.9	90 (16.4)	18 (32.1)	0.003
I have difficulty translating CPD knowledge into practice.	87	14.4	72 (13.1)	15 (26.8)	0.006
I encounter language barrier in CPD sessions.	81	13.4	71 (13.0)	10 (17.9)	0.004
I do not participate in CPD because my employer does not pay for it.	73	12.1	55 (10.0)	18 (32.1)	<0.001
My CPD sessions are too expensive.	70	11.6	57(10.4)	13 (23.2)	0.005
I learned nothing new from CPD.	28	4.6	21 (3.83)	7 (12.5)	0.003

[a] Chi-square test for independence

Table 1 illustrates based on the 'agreed' respond by participants on both enablers and barrier factors. (30%) of nurses and midwives perceived that too busy caused them unable to join CPD. The positive factor (90.6%) affirmed that CPD session was attractive topics, (87.9%) support from nurse/midwife managers and (83.9%) felt ease of CPD registration. Barrier factors that inhibit CPD participation include, (81.3%) lack of staff and (78.0%) family-work role conflict. The least inhibiting factors were due to cost and learning no new knowledge from the session. Notable factors that also addressed include (28.5%) difficulty to implement competency assessment skills for CPD and (14.4%) attended having difficulty translating acquired CPD knowledge into practice.

In terms of gender, Female participants (89.1%) had significantly higher support from manager to undergo CPD compared to male participants (76.8%) (p=0.023). Male participants reported significantly higher issue with being too busy (51.8%), difficulty to implement CPD assessment (46.4%), not confident to be assessed on competency skills (23.2%), ward environment do not foster CPD (32.1%), lack of motivation to attend CPD sessions (32.1%), difficulty translating CPD knowledge to practice (26.8%), language barrier (17.9%), employer did not pay for it (32.1%), and CPD session too expensive (23.2%)

Table 2: List of enablers and barriers affecting age in CPD engagement.

	Age				
Enablers	**20 to 29 (n = 37) N (%)**	**30 to 39 (n = 258) N (%)**	**40 to 49 (n = 93) N (%)**	**More than 50 (n = 216) N (%)**	**P-value a**
The CPD session available and topics are attractive.	37 (100)	244 (94.6)	80 (86.0)	186 (86.1)	<0.001
I feel supported by my manager to undertake CPD.	35 (94.6)	243 (94.2)	77 (82.8)	176 (81.5)	<0.001
The CPD registration system is easy.	28 (75.7)	228 (88.4)	66 (71.0)	185 (85.7)	0.003
I have adequate accessibility to my CPD sessions.	25 (67.6)	221 (85.7)	66 (71.0)	162 (75.0)	0.002
My facilities are adequate to provide CPD.	25 (67.6)	223 (86.4)	63 (67.7)	157 (72.7)	<0.001
Barriers					
Last-minute changes to work schedules make it hard to participate in CPD.	31 (6.1)	248 (96.1)	79 (85.0)	182 (84.3)	8.125
Understaffing means it is too hard for me to participate in CPD.	31 (83.8)	234 (90.7)	66 (71.0)	160 (74.1)	7.627
My role as a carer at home (for a child or another family member) makes it difficult for me to participate in CPD.	22 (59.5)	238 (92.3)	60 (64.5)	151 (69.9)	4.212
Shift work makes it hard for me to attend CPD.	31 (83.8)	230 (89.2)	55 (59.1)	136 (63.0)	1.376
CPD affects my time outside of my nursing/ midwifery work.	26 (70.3)	241 (83.0)	55 (59.1)	128 (59.3)	3.265
I am too busy to attend CPD.	13 (35.1)	52 (20.2)	32 (34.4)	84 (38.9)	8.806
It will be difficult to implement competency assessment skills for CPD.	13 (35.1)	44 (17.1)	31 (33.3)	84 (38.9)	2.574
I am not confident because I am not ready to be assessed on my competency skills.	10 (27.0)	37 (14.3)	22 (23.7)	59 (27.3)	0.005
My ward environment does not foster a culture of CPD learning.	7 (18.9)	33 (12.8)	19 (20.4)	56 (25.9)	0.004
I have a lack of motivation to attend CPD sessions.	10 (27.0)	30 (11.6)	22 (23.7)	46 (21.3)	0.005

Cont... **Table 2: List of enablers and barriers affecting age in CPD engagement.**

I have difficulty translating CPD knowledge into practice.	6 (16.2)	24 (9.3)	16 (17.2)	41 (19.0)	0.020
I encounter language barrier in CPD sessions.	2 (5.4)	23 (8.9)	16 (17.2)	40 (18.5)	0.006
I do not participate in CPD because my employer does not pay for it.	2 (5.4)	25 (9.5)	14 (15.1)	32 (14.8)	0.095
My CPD sessions are too expensive.	1 (2.7)	16 (6.2)	16 (17.2)	37 (17.1)	<0.001
I learned nothing new from CPD.	0 (0.00)	8 (3.1)	8 (8.6)	12 (5.6)	0.075

[a]Chi-square test for independence

In terms of age status, younger participants generally had significantly find CPD sessions attractive and supported by their managers to undertake CPD. They also noted that their ward environment does not foster a culture of CPD learning (25.9% vs. 20.4%) and (12.8% vs. 18.9%) (p=0.004).

Table 3: List of enablers and barriers affecting marital status

	Marital Status		
Enablers	**Married (n=506) n (%)**	**Single (n=98) n (%)**	**P-value a**
The CPD session available and topics are attractive.	462 (91.3)	85 (86.7)	0.157
I feel supported by my manager to undertake CPD.	443 (87.6)	88 (89.8)	0.767
The CPD registration system is easy.	426 (84.2)	81 (82.7)	0.830
I have adequate accessibility to my CPD sessions.	402 (79.5)	72 (73.5)	0.188
My facilities are adequate to provide CPD.	396 (78.3)	72 (73.4)	0.052
Barriers			
Last-minute changes to work schedules make it hard to participate in CPD.	451 (89.1)	89 (90.8)	0.162
Understaffing means it is too hard for me to participate in CPD.	420 (83.0)	71 (72.5)	0.006
My role as a carer at home (for a child or another family member) makes it difficult for me to participate in CPD.	407 (80.4)	64 (65.3)	<0.001
Shift work makes it hard for me to attend CPD.	385 (76.1)	67 (68.4)	0.026
CPD affects my time outside of my nursing/midwifery work.	364 (71.9)	59 (60.2)	0.020
I am too busy to attend CPD.	144 (28.5)	37 (37.8)	0.066
It will be difficult to implement competency assessment skills for CPD.	142 (28.1)	30 (30.6)	0.368

Cont... **Table 3: List of enablers and barriers affecting marital status**

I am not confident because I am not ready to be assessed on my competency skills.	101 (20.0)	27 (27.6)	0.017
My ward environment does not foster a culture of CPD learning.	90 (17.8)	25 (25.5)	0.014
I have a lack of motivation to attend CPD sessions.	81 (16.0)	27 (27.6)	0.006
I have difficulty translating CPD knowledge into practice.	68 (13.4)	19 (19.4)	0.125
I encounter language barrier in CPD sessions.	72 (14.2)	9 (9.2)	0.032
I do not participate in CPD because my employer does not pay for it.	63 (12.5)	10 (10.2)	0.063
My CPD sessions are too expensive.	64 (12.7)	6 (6.1)	0.136
I learned nothing new from CPD.	22 (4.4)	6 (6.1)	0.444

[a] Chi-square test for independence

In marital status, single and married staffs had notably (65.3%) and (80%) ($p<0.001$) respectively more challenges in role of a career at home. In education levels barriers mentioned (61%) in certificate level showed more problems related to shift work, followed by (70.3%) from diploma levels, (80.8%) respondents from post basic level and (63.8%) by bachelor and master levels. About 31.3% participants from bachelor and master levels issued feel not confident to be assessed on competency, then (17.3%) from post basic level, followed by (35.5%) diploma level and certificate level (10.9%). No significant finding notified respondents according to their years of services.

Table 4 List of enablers and barriers to the respondent's settings in CPD.

	Settings		
Enablers	**Hospital Based (n=276) N (%)**	**Health Care Based (n=328) N (%)**	**P-value a**
The CPD session available and topics are attractive.	255 (92.4)	292 (89.0)	0.159
I feel supported by my manager to undertake CPD.	6 (2.2)	22 (6.7)	0.008
The CPD registration system is easy.	242 (87.7)	265 (80.8)	0.056
I have adequate accessibility to my CPD sessions.	242 (87.7)	232 (70.7	4.441
My facilities are adequate to provide CPD.	231 (83.7)	237 (72.3)	<0.001

Cont... **Table 4 List of enablers and barriers to the respondent's settings in CPD.**

Barriers			
Last-minute changes to work schedules make it hard to participate in CPD.	252 (91.3)	288 (87.8)	0.164
Understaffing means it is too hard for me to participate in CPD.	237 (85.9)	254 (77.4)	0.013
My role as a carer at home (for a child or another family member) makes it difficult for me to participate in CPD.	230 (83.3)	241 (73.5)	0.004
Shift work makes it hard for me to attend CPD.	218 (79.0)	234 (71.3)	0.045
CPD affects my time outside of my nursing/midwifery work.	213 (77.2)	210 (64.0)	<0.001
I am too busy to attend CPD.	47 (17.0)	134 (40.9)	1.929
It will be difficult to implement competency assessment skills for CPD.	48 (17.4)	124 (37.8)	2.187
I am not confident because I am not ready to be assessed on my competency skills.	35 (12.7)	93 (28.4)	9.991
My ward environment does not foster a culture of CPD learning.	40 (14.5)	75 (22.9)	0.019
I have a lack of motivation to attend CPD sessions.	27 (9.8)	81 (24.7)	1.894
I have difficulty translating CPD knowledge into practice.	28 (10.1)	59 (18.0)	0.006
I encounter language barrier in CPD sessions.	37 (13.4)	44 (13.4)	0.551
I do not participate in CPD because my employer does not pay for it.	32 (11.6)	41 (12.5)	0.523
My CPD sessions are too expensive.	26 (9.4)	44 (13.4)	0.279
I learned nothing new from CPD.	6 (2.2)	22 (6.7)	0.008

a Chi-square test for independence

Table 5 determine participants' hospital settings. Nurses in hospital based (77.2%) considered that CPD affected their time after work more than nurses in health care (64.0%) ($p<0.001$). In contrast, staffs in hospital area (83.7%) motivated that facilities provided are adequate more than staffs in clinical area (72.3%) ($p<0.001$). In addition, nurses working office hours (27.6%) perceived that their ward environment does not foster a culture of CPD learning more than nurses working shift (14.4%) ($p<0.001$). They also perceived that CPD sessions were too costly compared to shift nurses (17.8% vs. 8.2%) ($p<0.001$).

Discussions

Our study revealed that the most common barriers for CPD were last minute changes to work scheduled, staffs shortage and shiftwork. Despite Brunei is considerably a small country, there was still substantial numbers of nurses and midwives who reported understaffing. Worldwide, understaffing has been repeatedly echoed as the common barriers which impede nurses and midwives to engage with CPD. This is similar to a study conducted in Kenya that nurses reported staff shortage (n=199, 85.8%) and lack of time due to heavy workload (n=179, 77.2%) (Priscah et al., 2017). Another supported study in Nigeria where 163 nurses (N=220) also mentioned workload[7]. Further study in Australia involved sixteen midwives via focus group discussion where experienced of persistent understaffing also highlighted[8].

This study also affirmed that another barrier for nurses and midwives to engage in CPD is due to too busy. Related study in Kenya where 179 nurses (N=232) reported on lack of time due to heavy workload mentioned[9]. Other study in Africa where 42.7% nurses (N=129) reported time is the most important barrier[10].

Another highlighted barriers by participants where ward environment does not foster a culture of CPD learning and lack of confident due to unreadiness to be assessed on the competency skills. A study in India where 6 nurses (N=60) also addressed on lack of confidence in learning[11]. However, study on nurses in South Africa concluded that they were treated unsupportively which causing them to feel demotivated[3].

In this study nurses and midwives encountered language barriers and learned nothing new in CPD sessions also another hindrance. Similarly, study in Nigeria where 185 nurses (N=584) also mentioned on learned nothing new on CPD[12]. In addition, study in India where 10 nurses (N=60) noted on language barrier also added[11].

In this study, it was found that significant barriers related to gender. Similar study conducted in Kenya where 177 nurses (N=232) recruited are female in comparison to 55 male nurses[13]. Other supported study in Africa where out of 108 nurses (N=129) were found to be female also confirmed[10]. In addition, there are significant association between CPD and age. These findings indicated the nurses and midwives productive age actively in CPD at 30-39 years and over 50 years old. Yet, there are still no specific indications on what are the exact reason that lead them being not actively participate in CPD. In which future qualitative study could beneficial to identify the true outcome. Supported study in South Africa where 61 nurses (N=129) were age more than 50 years old compared to 29 nurses aged at 30 - 39 years old[10].

Lastly, there are significant association between CPD and those nurses and midwives who worked in hospital settings and health care based. These finding suggested nurses and midwives in both settings need to acknowledge their role and manage their time effectively. Though a study in Philippines did not involve health care setting, yet the finding reported that there is significant barrier associated in private setting compared to public hospital ($p<0.001$) are commented[14].

Limitations

The study results should be used within the limitation of questionnaire which is inclined to reporting and recall bias. Though the minimum sample was, however, this does not reflect for the whole nurses which included private hospitals.

Recommendation and Conclusions

Further study recommended on the involvement of assessment skill in CPD mainly to enrich the nurses and midwives' confident level in their daily task. Future qualitative research on nurses and midwives perceptions in CPD engagement may value. Other recommendation address maybe to provide "study day" which enable them to be well prepared before delivering CPD and to acknowledge their performance by means token of appreciation such as provide them with "certificates" in additions to the CPD points that they earned. Encouragement from managerial site may potentially influence their sub-ordinates by creating equal and structured plans in scheduling their activities towards CPD. Please refer to figure 2 and 3 indicating on mind-mapping CPD framework and proposal revised in related

to promote CPD engagement in the future.

Conflict of Interest: None

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Diabetes Educator: The Role and Experience in a Tertiary Government Hospital – A Technical Note

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Abstract

Diabetes educator (DE) has a clear and important role in the overall management of patients with diabetes in all stages of care by providing much needed detailed information and support on adequate understanding of the pathology and safe-execution of the prescription by the specialist and other life-style changes to combat diabetes effectively. This is more significant in countries like India where there is an unfavourable ratio of physicians to patients with diabetes. The accessibility of the health-care team by the huge number of patients with diabetes in the government hospitals and consequent rush hours can be effectively compensated by the DE by relieving the physician of routine and repeated individual counselling contributing to effective physician utilization and avoiding fatigue and burnout. Literature has evidence that this cost-effective intervention can improve patient outcome and warrants more investment in formal training and continuous academic development of DEs. In this manuscript, a step-by-step counselling of patients with diabetes is described for easy understanding and execution.

Key words: *diabetes educator, counselling of diabetes, self-management plan*

Introduction

In 2020, the International Diabetes Federation (IDE) has estimated that 463 million people have diabetes globally and 77 million in India with a prevalence of 8.9% in the adult population in this country[1]. Recent study has confirmed exponential rise of diabetes in India in the future (101 million and 134.2 million in 2030 and 2045 respectively) along with similar increase in other countries[2]. There has been report of failure to reach clinical target goals in diabetic management in advanced countries like the USA despite advancement in pharmacotherapy and related technology and the study showed that, between 2010 and 2016, the improved outcome had stalled or even reversed[3]. Although, there is a lack of comparable study in India, it might be reasonable to assume similar circumstances in diabetic care. The government health sector in India provides free service to all but there is still a lack of patient centred care that provides diabetes self-management education and support in many hospitals. Other factors like poor patient knowledge of diabetes, suboptimal medication adherence, persistent clinical inertia, lack of data for monitoring and evaluation through clinical audit worsens the standards of diabetes care in India. This is more obvious in the primary care settings where maximum number of patients visit. To counter this situation, literature has supported the role of uninterrupted supply of drugs, provision of essential laboratory investigations, training and availability of qualified diabetes educators (DE) and availability of specialist support in addition to screening for depression and cessation of smoking[4]. A DE is usually a nurse who specializes in the care and management of patients with diabetes[5]. Depending on the healthcare system, they can be registered nurse, advanced practice nurse or nurse working in an expanded role. They are trained and experienced to provide required knowledge and counselling to any patients with diabetes in a group or individually[5].

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So, DE bridges the gap between the clinical and self-management aspects of care on an individual level and impart people with diabetes the knowledge, skill and confidence to accept responsibility for self-management. The obligation of DE also includes collaboration with the team of physicians, making informed decisions, solving problems, developing personal goals and coping with emotion and stresses[6].

Materials and Method

All India Institute of Medical Science at New Delhi is a tertiary care government hospital and is a teaching and research institute. Of the many thousand patients visiting the institute's various Out Patient Departments (OPD); approximately 250 patients visit the department of endocrinology and 40-50 new or existing patients seek help of the DE. The generally followed principles for referral to the DE, but not limited to are as follows:

1. All newly diagnosed cases.

2. Follow-up at 3 - 6 months or annually, or when desired glycaemic control is not achieved.

3. If there is a diabetic complication.

4. If a woman with diabetes plans a family.

5. New onset or existing psychological stress.

6. Changes happening in the life of the patient involving living situation, limitation due to ageing, diabetic complications etc with impact on the treatment.

7. Patient's wish to learn, refresh knowledge, doubt clarification etc.

Patients are usually counselled individually on one-to-one basis that last from 10 – 30 minutes depending on the need (existing patient with minor doubts vs newly diagnosed one). On few occasions, however, common knowledge like insulin injection technique is explained in a small group and questions answered. The following routine of counselling and documentation is adhered to depending on the nature and stage of the diagnosis.

Newly diagnosed:

1. Thorough history including medical history and any current medication.

2. To assess health and cultural beliefs, health limitations, financial status, family support

3. To check knowledge about diabetes

4. To teach timing, interpretation and use of portable glucometer and Self-Monitoring of Blood Glucose (SMBG) for documentation, future evaluation and feedback; storage of medications including insulin, transport of insulin (cold chain maintenance) use of treatment devices (insulin pen, injection, pump etc), disposal of used devises etc.

5. To impart knowledge on benefits of physical activity and recommendations.

6. To prevent, identify and to undertake necessary action for acute and chronic complications.

7. Risk reduction – cessation of smoking, moderation / stopping alcohol.

8. Insulin self-dose adjustment in patients with frequent blood-sugar (BS) fluctuation.

9. Addressing psychological issues and concerns to accept living with diabetes. If the psychological issues do not improve or deteriorates the treating physician is informed for a psychiatry referral.

10. Referral to a dietitian and diabetic foot care specialist.

11. Referral to an Ophthalmologist.

12. To promote individual strategies for better health through life-style modification (LSM) including yoga etc.

13. Information on existing resources (both online and printed) for a better understanding of the current and future health condition following diagnosis of diabetes.

14. Referral to the hospital social service worker for a less privileged patient.

Follow-up visits:

It happens usually at 3, 6 and 12 months unless there

is a complication or desire by the patient to see the DE. The following are carried out during this visit.

1. To take a history of diabetes control and other new health conditions.

2. To assess the benefits of the initial visit.

3. To check Insulin injection sites (for hypertrophy etc).

4. To check the previous knowledge imparted and to reinforce treatment goals and self-management goals.

5. To identify the causes of ineffective treatment (if any) and to address them.

6. Psychological support for sustained LSM and to live with diabetes.

7. Yearly assessment by the diabetic foot care or earlier if required.

8. Yearly assessment by an Ophthalmologist.

Special visits:

These visits are made during diagnosis of complications or patients with potential factors for complication. The following are checked and imparted on one-to-one basis as these patients are prone to deteriorate unless effective measures are taken urgently.

1. To check and revise already imparted knowledge on diabetes care and to emphasize possible ill-effects unless they are adhered to.

2. To identify the barriers of effective treatment (if any) and to address them.

3. To develop and support LSM.

4. Psychological support following long standing disease or any complication leading to any physical limitation.

5. Any other issues raised by the patient.

During major life events:

These visits happen when there is significant change in the living environment, support from the family and society, physical limitation following age or diabetes related complications etc. The following are checked and imparted.

1. To check and revise already imparted knowledge on diabetes care.

2. To adjust self-management plan for diabetes.

3. To repeat and support independent self-management skills and to monitor its efficacy, if allowed by the prevailing physical limitations.

4. To provide knowledge to the new care giver on diabetic management, documentation of health data and identification of complications etc.

5. To provide psychological support in the changing scenario and to emphasize that the entire team of the care giver is there in case of need at any point of time.

6. To develop treatment goals and personal strategies in the changing environment.

7. Referral to the hospital social service worker if the patient requires assistance in the changing environment.

8. Any other issues raised by the patient.

Apart from the Out Patient Clinics, the admitted patients with diabetes (admission usually follow special circumstances like complications), are thoroughly evaluated and counselled on case-to-case basis using the same basic steps as outlined above. As the patients usually stay in the hospital for more than a day, they are counselled repeatedly and knowledge checked and revised if needed.

Discussion

DEs have covered a long way and served patients with diabetes since the concept was introduced by Apollinaire Bouchardat in 1883 in his book Le Diabète Sucré. He advised people with type 2 diabetes to follow a low-calorie diet and exercise more to improve their blood glucose values which is valid even today. The service of a DE has been incorporated in the treatment

of patients with diabetes in Europe as an organized principle or even by law (Italy)[7]. DE continue to represent a diverse group of professionals in the US that includes nurses (50%), dietitians (35%), pharmacists (6%), and others (6%). The most commonly held credential for the specialty continues to be the Certified Diabetes Educator (86%), with only 5% of the DE indicating that they held the Board Certified–Advanced Diabetes Management credential[8]. In the US, it has been documented that DEs are effective in improving clinical, psycho-social and behavioural out-come in patients with diabetes[9-12]. The situation in other developed countries like the UK is far from optimal where between 2010 and 2012 the number of diagnosed cases diabetes rose by 10% but there was a fall of 3% in the number of sites who employ any Diabetes Specialist Nurses or DE[13]. In Australia, there has been a gradual movement of the diabetes educator workforce from a nursing dominant entity, with an emphasis on interprofessional role boundaries, to an interdisciplinary body, in which role flexibility is encouraged[14]. However, in India the concept of DE is a new one excepting few apex medical institutes and is an evolving area of interest for the health-education planners and policy makers. There is an urgent need for the employers, health care providers, health boards, universities, association of allied health care professionals to take necessary steps to train DEs in adequate numbers to effectively manage exploding diabetes epidemic in India.

Conclusions and implications for nursing practice:

Understanding diabetes for better management and avoiding / delaying complications has been well incorporated in many advanced health care systems in the world and its effects documented. While it is easier for a paramedic like a nurse to become a DE with a short duration of training, due to nature of the basic education, it has been an area that requires more attention. Investment in the training and continuous development of DEs will go a long way in imparting much needed information to the patients with diabetes thereby helping to curb the epidemic.

Conflict of Interest: Nil.

Ethical Clearance: This is a narrative technical note.

Ethical Clearance: Not required.

Source of Funding: None.

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 DOI Number: 10.37506/ijone.v13i3.16318

Education Shift During COVID-19: Students' Satisfaction with Emergency Distance Learning

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Abstract

Background: COVID-19 pandemic, a global issue, enforced education system to shift with distance learning mode. This study assessed students' satisfaction with emergency distance learning.

Methods: A cross-sectional survey was done among 200 nursing students studying in five nursing campuses of Tribhuvan University. To collect data, questionnaires containing 28 statements measuring students' satisfaction with online learning on a five-point scale was used. The electronic link of the questionnaire was shared to the participants via their emails, vibers and messengers. Descriptive analysis of data was done using SPSS software.

Finding and Conclusion: Distance learning classes were taken through Zoom, Microsoft team, email, viber and messenger. Only 49% students were enjoying online platform applications and >90% of them felt need for training regarding use of technology for distance learning. The learning environment was comfortable for >2/3rd of the students, 74.5% were satisfied with the instructor's encouragement for active learning and >1/3rd had issues with the instructor's pace of punctuality. The classes were interrupted due to technological error. The internet charges were expensive and students refused practical classes through distance learning mode.

Key words: *Distance Learning, nursing education, remote education, satisfaction, student*

Introduction

Distance learning is increasing due to flexibility in time and place with a lesser cost than face-to-face class.[1] In COVID-19 pandemic, 191 countries in the world and 98% of the global student population switched to distance learning[2] while, very few educational institutions implemented it before.[3] Developing countries like Nepal, has underdeveloped culture of distance learning.[4] After the closure of education sectors in amid of COVID-19 pandemic, the country pursued alternative modes of learning in higher education.[5]

Educational institutions are not prepared for transitions of emergency distance learning[6] although, various online learning tools are available.[7] Despite teachers' teaching skills, online class is stressful for students[8] and satisfaction with class decreases student's dropout.[9] Although combination of both distance and conventional face-to-face teaching-learning strategy is effective for nursing education,[10] students are less satisfied with the distance learning classes.[11] This understanding made us think that what would be the nursing students' satisfaction status toward online class? In this scenario, understanding students' satisfaction is important not only to the teachers to assess the

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quality of the lesson taught but also to the campus and university for measuring program quality itself for better academic advancement.Therefore, this study answered the question of are nursing students satisfied with online classes?

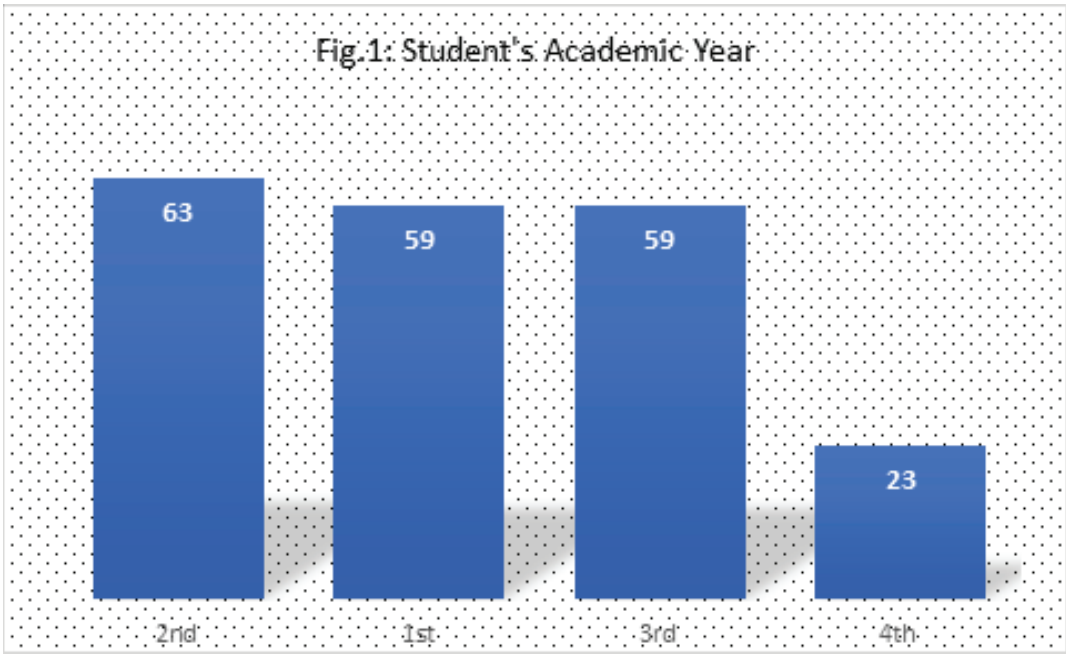
Methods and Materials

The study adopted cross-sectional survey design, in which, questionnaire was shared with randomly selected 336 nursing students who were studying in the five constituent nursing campuses of Tribhuvan University, Institute of Medicine. A structured questionnaire was developed in google forms containing three sections: Section I related to demographic information, section II measured use of online platforms and the section III geared toward measuring student's satisfaction with distance learning. It was measured in the scale of strongly disagree-1, disagree-2, neutral-3, agree-4, strongly agree-5.

The campus chiefs of those campuses were approached via telephone and email. They were given a description of the study and requested to distribute the survey link to their institution's sampled students. In addition to this approach, based on investigators' knowledge of existing communication structures among students and faculties, additional student and faculty-led distribution was also achieved through social media groups such as e-mail, viber and messenger. Data was collected from 2 to 8th January, 2021.The information obtained was kept confidential and the researcher was not able to link the obtained information with participants. Detailed information for the participation was sent to the participants along with the questionnaire and were not forced for participation. Self-generated Excel sheet made with Google Forms was transferred to SPSS Version 20 for analysis. Descriptive statistics was done to check the frequency distribution of the variables.

Results and Discussion

Social distancing was instituted due to the Coronavirus induced pandemic that consequently interrupted the conventional classroom teaching. To address this challenge, schools and universities have instituted emergency distance learning. This study aimed to assess students' satisfaction with distance learning. Out of 336 students, 200 responded to the questionnaire (59.5% response rate). Most of the students participating were residing outside the Capital City. Their class attendance was 75 to 100 percent and most (31.5%) of them were of 2nd year



(Fig.1).

In the study, >85% students said that distance lectures were delivered using zoom, Microsoft team, email, viber and messenger. (Table 1). Other medical colleges of Nepal also used zoom platforms for online class.[12,13]YouTube and Google classrooms were common for medical students in Kerala.[14]Access to different e-learning technology made it possible to learn online.[15] However, it is unclear which methods of teaching best fits for online learning[6]hence, there is still a need for more evidence regarding remote online learning.

TABLE 1: Use of Learning Platforms

n= 200

Variables	Responses (no.%)				
	1	2	3	4	5
Zoom	10(5)	12(6)	24(12)	46(23)	108(54)
Moodle	179(89.5)	3(1.5)	16(8)	2(1)	-
Microsoft team	57(28.5)	26(13)	66(33)	20(10)	31(15.5)
Google meet	122(61.5)	25(12.5)	31(15.5)	13(6.5)	9(4.5)
e-mail	16(8)	11(5.5)	57(28.5)	62(31)	54(27)
Viber	60(30)	12(6)	37(18.5)	51(25.5)	40(20)
Messenger	16(8)	16(8)	41(20.5)	61(30.5)	66(33)
not at all-1, little extent-2, sometimes-3, high extent-4, very high extent-5					

Students' satisfaction with distance learning is presented in table 2 that was measured in the scale of strongly disagree, disagree, neutral, agree and strongly agree.In the study, 51% respondents could not enjoy distance learning due to less skill of technology use and >90% demanded training before implementation of distance learning. Success of remote learning depends on learners' skill for use of technology[16] while, unfamiliarity makes learning complicated.[17]

TABLE 2: Satisfaction with Distance Learning

n= 200

Variables	Response (no.%)				
	1	2	3	4	5
I feel confident and enjoy using the online platform applications	5(2.5)	24 (12)	73(36.5)	77(38.5)	21(10.5)
I feel students need to be trained before undergoing online learning activities	2(1)	6(3)	29 (24.5)	97 (48.5)	66(33)
I feel students need to be updated with latest technology	3(1.5)	4(2)	12(6)	65 (32.5)	116(58)

Cont... **TABLE 2: Satisfaction with Distance Learning**

n= 200

I frequently interacted with friends and the instructors during the course	5(2.5)	18(9)	65(32.5)	93(46.5)	19(9.5)
I got enough time to study	7(3.5)	23(11.5)	51(25.5)	90(45)	29(14.5)
I like the way my instructor made students feel a sense of belonging	2(1)	4(2)	48(24)	109(54.5)	37(18.5)
Teachers' organization and preparation for class provides comfortable learning environment	2(1)	8(4)	53(26.5)	108(54)	29(14.5)
I like the instructor's teaching ability	1(0.5)	9(3)	56(28)	106(53)	28(14)
I like when instructors emphasize in maintaining the distraction free classes	3(1.5)	9(3)	57(28.5)	105(52.5)	26(13)
I am satisfied with the Instructor's encouragement in class participation	-	11(5.5)	40(20)	115(57.5)	34(17)
I am satisfied with the instructor's accessibility and professional behavior during the class	1(0.5)	11(5.5)	44(22)	123(61.5)	21(10.5)
I am satisfied with the instructor's pace of punctuality in starting the class	10(5)	22(11)	66(33)	79(39.5)	23(11.5)
I am satisfied with the instructor's supportiveness and responsiveness towards my questions	3(1.5)	7(3.5)	44(22)	106(53)	40(20)
Online applications (zoom meet, Google meet, Team) are easy to use	1(0.5)	10(5)	37(18.5)	114(57)	38(19)
Internet charge is expensive	2(1)	12(6)	44(22)	71(35.5)	71(35.5)
Class interruptiondue to technology/ internet	2(1)	4(2)	20(10)	71(35.5)	103(51.5)
strongly disagree-1, disagree-2, neutral-3, agree-4, strongly agree-5					

Previous scholars also supported the need of training before institution of distance learning.[3]In the study, only 47.5% respondents enjoyed distance learning and felt comfortable. These finding complements that of Blizak,[4] in which students opposed online learning and demanded traditional classroom. In general, students are not interested in virtual class.[5] The reason might be doubts regarding the usefulness of this urgently adopted teaching strategy.[6] Here the argument is if the majority of the students can not enjoy and feel comfort in class, what would be the quality of education?

In the study, >2/3rd of the respondents was satisfied with the class organization by the instructors that made students comfortable. Even more of them were satisfied with the lectures, use of communication techniques and the instructor's encouragement in class. Contrary to this finding, there was communication gap between teacher and student during online class.[7,8]If students are valued and informed, they will be satisfied.[9] This suggests that unlike others, nursing students have a sense of belongingness in online class and were satisfied with the lectures delivered by the teachers. Although 73% respondents in this study were satisfied with the instructor's supportiveness and responsiveness towards their questions, >1/3rd were not satisfied with the instructors pace of punctuality in the class. Sometimes neither lectures are managed as course[8] nor students are valued.[7]If teachers cannot be in time for lectures, students will be dissatisfied[8]that affect the outcome of the lecture. In the study, 68% students were satisfied with the content displayed during the lecture. In online class, students focus more on skill and time management over

technology.[10]Here we can argue that online technology being used for class is not a big issue to the students but management of the physical and psychological learning environment matters. However, in the study, 87% students found sudden interruption of the internet affected their learning process. Not only the network and electricity power failure[6,9] but also the online software failure[7,8] disturbs lecture. Moreover, in the study, 71% of students worried about the expensive internet charges. Economic burden to afford technology prevents students from enrolling in distance learning.[11]This suggests that although there is access to technology for online class, educational institutions need to be aware of learners' affordability while offering the courses online.

In response to the question, "would you need repetition of online classes once usual class restarts", 28% students in this study said yes, 44.5% said may be and 27.5% said no. (Table 3). This finding suggests that students could not decide how to perceive the emergency distance learning. Superior to this, 78.9% students of Gandaki medical demanded revision of online courses through conventional classroom teaching.[6] Moreover, 53.5% of students in this study refused continuation of online classes once regular class starts. Contrary to our study finding, 89.9% medical students of Chitwan Medical College[3] and 77% medical students of Pakistan[12] feel comfortable with continuation of online class. However, only 39.3% of medical students in India[9]and 27.3% students of Gandaki Medical college[6] were in support of online class continuation. Through this discussion it can be claimed that after all the emergency distance learning is in the very beginning stage of development, students could not decide whether or not to accept this transitional education shift and there is confusion about its effectiveness and usefulness. Most of the students (70.5%) in the study refused the practical sessions through online mode. Medical students of India also disliked practical classes through online mode.[9] Clinical/practical courses of health sciences cannot deliver through online.[8] This discussion suggests that although distance mode of learning can be adopted in some situations, it cannot replace the face-to-face mode of learning.

Table 3: Respondents' Perception on Different Dimensions of Distance Learning

n= 200

Dimensions	Responses (no.%)		
	Yes	No	May be
Need revision of courses taught online through face-to-face usual classes	56(28)	55(27.5)	89(44.5)
Continuation of online classes	37(18.5)	107(53.5)	56(28)
Practical sessions through online	17(8.5)	141(70.5)	42(21)
Online sessions' materials to be available for later usage	157(78.5)	16(8.0)	27(13.5)

Conclusion

The swift conversion of conventional face-to-face class to online mode during COVID-19 pandemic is accepted by the students although it is less effective than the conventional one. Students feel a sense of belonging when teachers ensure their active participation in class. At the same time some challenges including technology preparedness, its affordability, irregular power supply and internet security hinders the effective learning process. Some of the courses/subjects are not easily

transferable to online mode on the other hand practical sessions are almost impossible to deliver through online platforms. Strengthen the education system to face any such challenge in future, preparation for remote online learning will help. Empowering teachers and students for online delivery of lessons, creating e-learning systems at institutional level and creating evidence on online learning are some suggestive measures for improving distance learning.

Ethical Clearance: Ethical approval was obtained from the institutional review committee of Institute of Medicine, Tribhuvan University with Ref. number 173/(6-11)2/077/078

Source of Funding: Self

Conflict of Interest: Nil

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The Effectiveness of Electronic Medication Administration Record: A Systematic Review

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Abstract

Background: Medication errors are currently a global issue in maintaining patients' safety. This varies among countries and the innovation in solving this issue by nurses is highly needed. Therefore, the purpose of this systematic review is to identify and evaluate the published studies related to the effects of electronic medication administration record system. **Methods**: The systematic reviews were carried out using six databases, published between January 1, 2014, and October 31, 2018. The search for articles focused on the effects of electronic medication administration records. **Results**: Based on the search for research reports conducted in six databases, 772 articles related to the effect of applying electronic medication records were obtained. From this, 23 studies that matched the inclusion criteria were collected and analyzed. Furthermore, 9 studies showed that the effect of applying electronic medication records reduce the incidence of medication administration errors. While others showed increase in the average treatment accuracy, mortality reduction, documentation process elevation, nurses' mental load decrement high job satisfaction, and lesser nursing time. **Conclusion**: Electronic medication administration record was effective in reducing error incidence. Therefore, this innovation is highly recommended to be implemented both in hospital settings and community-based health services.

Keyword*: patient safety, medication errors, electronic medication administration record, drug administration.*

Background

Medication errors are the leading causes of avoidable patient harm in the health care system across the world, posing dangerous consequences on patients, and potentially result to unexpected effects. This occurs at any stage of drug use process, from prescription, reading, copying, preparation, delivery, administration to monitoring its effects. The number of medication errors was 56.4% with the most dominant being documentation (87.5%), wrong method of administration (73.1%), and time mismanagement (53.6%) [1]. Based on a systematic review there were errors in drug administration from 8.5 to 16.9 per 100 implementations [2].

The Electronic medication system provides high quality service, safety, and accuracy in carrying out drug administration[3]. This innovation is rapidly becoming standard and implemented in many countries. Several studies showed that this type of information technology significantly reduce the incidence of medication administration errors, as well as the hospital expenses related to this condition[4]. The effect of barcode technology with electronic medication administration records increase the accuracy of drug administration from 89% to 90% [5].

The application of electronic medication administration records is very important, however, it is a complex process and errors are common, reaching an average of 25.6%[6]. The use of BCMA technology reduce drug administration errors between 41.4% to 80.7% [7]. Therefore, this technology is an important tool

in reducing the impact of drug administration errors [8].

Methodology

Sources and data search strategies

The search for research articles was conducted based on an electronic database from January 1, 2014, to October 31, 2018. The research journal databases used were: Google Scholar, EBSCO, ProQuest, Science Direct, PubMed, and Willey. The keywords used in this search were "effect OR impact AND electronic medication administration record" and "effect OR impact AND barcode medication administration".

Selection process

Inclusion criteria

The research articles focused on the effect of electronic medication administration. The keywords were located in all the texts, the articles were scientific journals, written in English, published from January 1, 2014, to October 31, 2018. The selected articles were those published in European, Asian, and American countries. This study employed quantitative, observation, and intervention technique for reviewing the collected articles, and focused more on medication administration carried out by nurses. This research was based on patient services at hospitals and community, nursing homes, clinics, and other health services.

Exclusion criteria

The exclusion criteria were articles of letters, opinions, editorials, case reports, theses, and dissertations. The research articles that do not consistently use the terms eMAR or BCMA were excluded, since they do not focus on the effects caused by the application of electronic medication administration records. The laboratory studies conducted as a trial in educational institutions were also among the exclusion criteria.

Data extraction process

The search results for articles were exported to Endnote X8 (Thomson Reuters, Times Square New York, NY, USA). Their titles and abstracts were screened and checked against the inclusion and exclusion criteria from a systematic review, followed by the full text. The articles included, were then extracted into a data collection table developed based on the research objectives. This was carried out based on the country of study, scope, length of time, design, definitions used in the research, analysis, and reports. The data from the articles were reviewed using CASP tools, then extracted and grouped for triangulation discussion, and concluded to ascertain the journal quality.

Quality assessment

The article quality assessment adopted the effective public health practice project (EPHPP) and the Jhons Hopkin Nursing Evidence Base Practice. And were analyzed based on the inclusion criteria, i.e., considering specific aspects related to the application of electronic medication administration records. Therefore, the Journals' quality were determined using Jhons Hopkin Nursing evidence-based practice, and were categorized into level I, II, III, and IV. From the 23 journals reviewed, 5 were included in level II and 18 in level III.

Results

Article search results

The search results in the journal database found a total of 772 articles. After the identification, screening, and eligibility process was carried out 23 articles were obtained and analyzed (Table 1).

Table 1 Characteristics of studies reviewed

Category	N	%
Sample Country		
USA	9	39,13%
Spain	3	13,04%
Denmark	3	13,04%
Hongkong	2	8,7%
Singapore	1	4,3%
France	1	4,3%
Australia	1	4,3%
Pakistan	1	4,3%
UK	1	4,3%
England	1	4,3%
Design		
Observational study	13	56,5%
Experimental study	6	26,1%
Quasi experimental	2	8,7%
Cohort prospective	1	4,3%
Qualitative	1	4,3%
Publication date		
2014-2015	10	43,48%
2016-2018	13	56,52%

Impact of electronic medication administration record

Reducing Errors

There were twelve research articles stating that electronic medication administration records have the effect of reducing medication errors (Table.2). The implementation of electronic medication administration also significantly increased the average accuracy [5]. The BCMA implementation also significantly reduced patients mortality rate [9]. The implementation of electronic medication administration records reduced intervention errors [10].

Table 2 The impact of electronic medication administration record (n=23)

Category	N	%
Medication errors [5,8,10–19]	12	52,17%
Mortality rate [9]	1	4,3%
Documentation completeness [20–22]	3	13,04%
Identify the factors causing medication errors [23,24]	2	8,7%
Nurse's mental burden [25]	1	4,3%
Identifying eMAR usage failures [26]	1	4,3%
Nurse satisfaction [27]	1	4,3%
Nursing time [28]	1	4,3%
Selfcare/ efficacy [6]	1	4,3%

Documentation completeness

The implementation of electronic medication administration records improved the completeness of the documentation process [20], and significantly enhanced the treatment from 1.1% to 3.2% [21]. However, one of the studies stated that it did not improve the documentation process [22].

Identifying eMAR usage failures

The failures from implementing eMAR were identified, such as a scanning without checking the patient's cognitive status, failed scans due to old patient ID, small text and icons on the computer screen, fast or slow working mouse, unresponsive barcode scanner and the inability to use it [26].

Nurse satisfaction

The electronic medication administration records increased the job satisfaction of nurses in administering drugs [27]. The implementation of electronic medication administration records reduced the nurse's mental burden [25]. Also, BCMA lessened the nurse's mental burden significantly based on the MAEs outcome.

Nursing time and selfcare

The implementation of electronic medication administration records reduced treatment time. The research stated that IPMOE significantly reduced nursing time from 61.7 to 29.81 [28]. The implementation of eMAR had an effect on improving patients' care and efficacy [6].

Discussion

There were 23 research articles in accordance with the inclusion criteria in America, Europe and Asia. This indicated that the cultural factors were not a barrier for the electronic medication records implementation, since it was applied in all countries, however, with various approaches adapted to their culture. From the 23 research articles obtained, 9 stated that the effect of applying electronic medication administration records reduced error incidences. Therefore, it is highly recommended to be applied in both hospital settings and community-based health services. Although, this application is highly recommended, it should consider the aspects of humanism, as well as maintaining the relationship between nurses and patients. The factors causing errors in implementing this application should also be avoided, especially human, in this case, the nurse

as the main application user. Therefore, It is necessary to improve the nurses ability to use electronic medication administration records, in the form of training and mentoring.

Strength and Limitations

This research covered various countries in the world, therefore, showing that electronic medication administration was applied in many cultures and countries. This study was conducted between 2014-2018, therefore, the information presented is still relevant. The limitation in this study was the lack of articles with experimental designs. Therefore, the more experimental studies, the more the prove that the implementation of electronic medication administration records is effective. This article also did not involve qualitative studies, therefore, did not explore the effectiveness of the implementation for nurses and patients.

Conclusion

The electronic medication administration records were effective in reducing error incidence, increasing accuracy in drug administration, decreasing patient mortality rates, completeness of medication documentation, reducing nurses' mental burden, identifying medication errors and reducing intervention them, increasing nurse job satisfaction, lessening nursing time, and improving patients' care. Therefore, this innovation is highly recommended in both hospital settings and community-based health services. In addition, the implementation of electronic medication administration records should consider humanity and cultural differences. since it is applied in many countries.

Conflict of Interests: The authors declare no conflict of interest.

Acknowledgments: This research is supported by PUTI Grant 2020 funded by DRPM University of Indonesia No: NKB-529/UN2.RST/HKP.05.00/2020

Ethical Clearance: This research received approval from the ethics committee of the University of Indonesia (Approval Number: SK-247 / UN2.F12. D1.2.1 / ETIK 2020).

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 DOI Number: 10.37506/ijone.v13i3.16320

Impact of COVID 19 on General Wellbeing of Working Women in Kerala

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Abstract

Health is a state of complete physical, mental, social and spiritual well-being not merely the absence of disease or infirmity (WHO) and it is multi factorial.Women's health is at a crossroads. Methods:A descriptive study with a quantitative approach was conducted n August – September 2020. The sample consisted of 100 working women selected by snowball sampling technique. Data were collected using modified general wellbeing scale which was prepared and administered online by the investigators. Results:The mean percentage of the general wellbeing score was 73.8.The findings of the study show that only 3% of the women had very good and 79% of them had good general wellbeing. It also depicts that 17% of them had average and only 1% had poor general wellbeing.Discussion: Today, women's roles are emerging differently with new commitment and career oriented as well as commitment to families. In the present scenario, women at work can be seen everywhere whether in or outside India. Working women also play multiple roles such as child rearers, parents, teachers, caretakers of their elderly parents, and many more, which become very much strenuous for them. It is the added responsibility and burden of chores that add to daily hassles or stress for them, especially in working women with young children, which definitely affect their psychological well-being[3].

Key Words*: *Impact ; General Wellbeing ; Working women.

Introduction

Well-being or wellness is the condition of an individual or group. A higher level of well-being means that in some sense the individual's or group's condition is more positive."Wellness refers to diverse and interconnected dimensions of physical, mental, and social well-being."

A state of physical well-being is not just the absence of disease. It includes lifestyle behavior choices to ensure health, avoid preventable diseases and conditions, and to live in a balanced state of body, mind, and spirit.Mental health is important at every stage of life, from childhood and adolescence through adulthood. Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act.[1]

Emotional health is an important part of overall health. People who are emotionally healthy are in control of their thoughts, feelings, and behaviors. They're able to cope with life's challenges.Being emotionally healthy doesn't mean you're happy all the time. It means you're aware of your emotions. You can deal with them, whether they're positive or negative. It can help you realize your full potential. It helps you work with other people and contribute to society[2].

Working women absorb a disproportionate amount of childcare and homeschooling responsibilities, and

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that double shift has grown to a "double double shift" now. The impact of Covid 19 of female workers must be a high priority because women dominate very high-risk jobs such as health care. Covid 19 has disrupted the formal and informal networks that are crucial to women's professional lives.[9]

Statement of the problem

"A study to assess the impact of Covid 19 on general well-being of working women in a selected community in Kannur district".

Objectives

· To assess the impact of Covid 19 on general wellbeing of working women

· To assess the changes in relationship among family members during Covid 19

· To find the association between impact on general wellbeing & selected demographic variables

Hypothesis

The hypothesis will be tested at 0.05 level of significance.

· There is a significant association between impact on general wellbeing and selected demographic variables.

Methods and Materials

Research approach

A quantitative study approach was used for the present study. The purpose was to assess the impact of Covid -19 on general well-being of working women.

Research Design

A descriptive survey design was optedfor the study.

Variables under study

Demographic variable

In this study, it refers to the variables such as age, religion, type of family, food pattern, education, occupation and current residential status.

Extraneous Variable

In this study, it includes any long term treatment, chronic diseases and mental illness.

Population

The population in this study comprised of working women who are from Kannur District.

Sample

In this study, the sample comprised of 100 working women in the age group of 21 to 52 years living in the selected communities of Kannur district.

Sampling Technique

The researcher opted snowball sampling to elicit information regarding the impact ofcovid-19 on general well-being of working women. Working women who fulfilled inclusion criteria and those who were ready to participate the data collection were selected.

Inclusion Criteria

Working women:

§ who reside at Kannur district

§ who are in the age group of 21 to 52 yrs

§ who are willing to participate the study

Exclusion criteria

Working women:

· Who are tested Covid positive

· Who are not familiar with online survey

Data collection technique and instruments

Data were collected using online survey created through goggle forms.

In this study, the tool consisted of two parts. They were:

Part I: Baseline characteristics: This was prepared to obtain the background information of the participants and consisted of seven statements.

Part II: **Modified general wellbeing scale:** A five point scale was prepared that included 36 statements which covered various aspects of general wellbeing including physical, emotional, mental, social, activities of daily life, food habits and family relations.

Scoring:

0- 45 – very good

46 – 90 – good

91- 135 -- average

136 – 180 – poor

Results

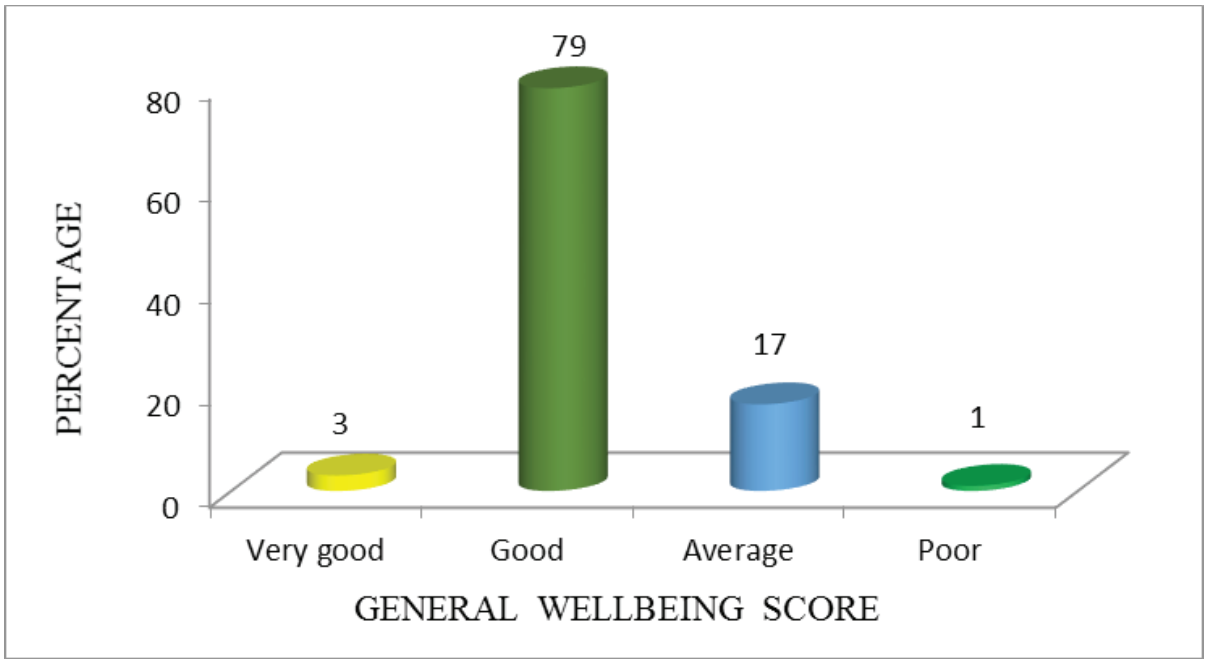
Range, Mean, Median and Standard deviation of general wellbeing scores of working women

n = 100

	Range	Mean	Median	Standard deviation
General wellbeing score	41-144	73.8	70	2.07

The data in the table show that the mean, median and standard deviation of the general wellbeing scale were 73.8, 70 and 2.07 respectively.

Bar diagram showing impact of Covid 19 on general wellbeing of working women



The data in figure in show that only 3% of the women had very good and 79% of them had good general wellbeing. It also depicts that 17% of them had average and only 1% had poor general wellbeing.

Association of mean score of general wellbeing and demographic variables

The association between mean general wellbeing score and demographic variables was done using inferential statistics.

H_0: There is no significant association between mean general wellbeing scores and selected demographic variables

To test the hypothesis at 0.05 level, alternate hypothesis was made.

$H_{1:}$ There is a significant association between mean general wellbeing scores and selected demographic variables

n=100

Variables	Chi square value	P value	Significance
Age	1.152	0.561	Non-significant
Religion	1.342	0.700	
Type of family	1.186	0.155	
Education	1.012	0. 560	
Occupation	1.686	0. 233	
Food pattern	1.269	0. 958	
Residential status	1. 245	0. 970	

P≤0.05 level **significant***

The data in the table show that there is no significant association between the selected demographic variables and mean general wellbeing score and hence the null hypothesis was accepted and research hypothesis was rejected.

The study shows that Covid 19 did not have any significant impact on general wellbeing of working women.

Discussion

Covid 19 has affected women much more profoundly. Lockdowns &self quarantine measures across the world have increased women's workload as more people are home-bound for a continued period of time and care giving tasks have increased. This will give a double impact on working women who need to balance both her family & job together. Data from the Organization for Economic Cooperation and Development show that Indian women do nearly six hours of unpaid care work each day. Globally, women perform76.2% of unpaid care work. According to UNESCO, 300 million children are missing school globally due to the current virus outbreak, increasing the responsibilities of women[8].

According to a survey by Kaiser Family Foundation, a much larger proportion of women worry about loss of income due to disruption of work. Women in leadership positions are more likely to suffer from depression, social tension and isolation due to negative perceptions[8].

Accordingly, this research assessed the impact of covid-19 on general well-being of working women, which needs to be considered during these times.

Conclusion

The study findings revealed thatonly 3% of the women had very good and 79% of them had good general wellbeing. It also depicts that 17% of them had average and only 1% had poor general wellbeing. The study shows that Covid 19 did not have any significant impact on general wellbeing of working women in Kerala.

Implications of the study:

The findings of the present study have several implications in the field of nursing education, nursing practice, nursing administration and nursing research. Nursing students must be taught regarding various stressful situations and ways to cope with those so that they can lead s successful life once they start living on their own feet. Administrators should be able to boost morale of the employees even in stressed situations so that they can be productive enough to serve the organization and nation.

Nurses are always with human beings and they really come across many situations that make them think critically and find answers to many questions. Research always offers a good platform for nurses and it's the need of the hour to conduct researches and find solutions for the many problems and needs that troubles humans in day-to-day life. The findings should be utilized to help people lead a better life and thus leading to a healthy and stable world though we are amidst a pandemic.

Ethical Clearance: The ethical clearance of this study was obtained from Institutional Ethical Committee (IEC) of Lourde College of Nursing.

Source of Funding: Self-funded project with in the Institution.

Conflict of Interest: The authors declare that there is no conflict of interest.

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Association between Nurses' Student's Quality of Life and Anxiety of Exams in Selected Universityat KSA

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Abstract

Background: Anxiety is considered as a widespread phenomenon that constitutes a worldwide reason of reduced academic achievements among students. **Aim:**To investigate the relationship between student nurse's anxiety from exams and their quality of life in selected universities at KSA. **Subject and Methods:** A descriptive cross-sectional research design on 189 student nurses from HafrAl Batin university.One tool is divided into three main parts; demographic data, and student's anxiety levels during exams, and student's quality of life assessment sheets. **Results:** there are a statistically significant correlation between student's anxiety during exams and their quality of life (($p < 0.001$). **Conclusion & Recommendations**: there are statistically significant relations were found between student's anxiety during exams and quality of life with their sociodemographic characteristics in item only related to the barrier faced in life for adaptation and compliance with exams. From the foregoing conclusion, students must receive regular; periodic in-service psychological rehabilitative program contains methods of adaptation and compliance with exams which indirectly promote their quality of life.

Key Words: *Association, Nurses' Student's, Quality of Life, Anxiety of Exam*

Introduction

Test anxiety has an impact on students either negatively or positively. It is normal to have exam anxiety that helps the students to be prepared for facing examination, on the other hand, it can also distress the students that can have a negative impact on students' physically, emotionally, and cognitively that paves a way to poor achievement in the examination. (1)

Stress is considered as an extremely difficult phenomenon that sometimes becomes problematic, and if a person is not capable to adjust to it body and mind are in danger. Risk factors of stress could cause harm to the structure of basic needs. If anxiety does not reply correctly, some symptoms such as fatigue, irritability, distraction, and feelings of guilt and gastrointestinal and pain occur. (2)

The impact of stress on nursing students academic achievements' differ plus several psychiatric disorders similar to depression and insomnia (3) . These symptoms build up in students before a test and negatively outcomes on student lives and professional growth (4,5). Additionally, there was an association between stress and physical wellbeing as feeling tired easily, getting nervous, poor sleep and chest tightness, loss of appetite, reduced or increased psychomotor speed, weight changes (6)

Anxiety and depression could be resulting from various factors associated with study pattern as class workload, student assignments, stress-related patient care, stress from teachers and nursing staff, unhappiness of the clinical environment, fear of failure in examinations, clash situations with colleagues, absent of academic counseling services, death of a family member or a lovely person (7,8,9,10)

Aim:

To investigate the relationship between student nurse's anxiety from exams and their quality of life in selected university at KSA

Research Questions

1. What are the anxiety levels of exams among nursing students in selected KSA University?
2. What is the quality-of-life levels regarding exams among nursing students in selected KSA University?
3. Is there a relationship between anxiety from exams among nursing students and their quality of life?

Theoretical framework

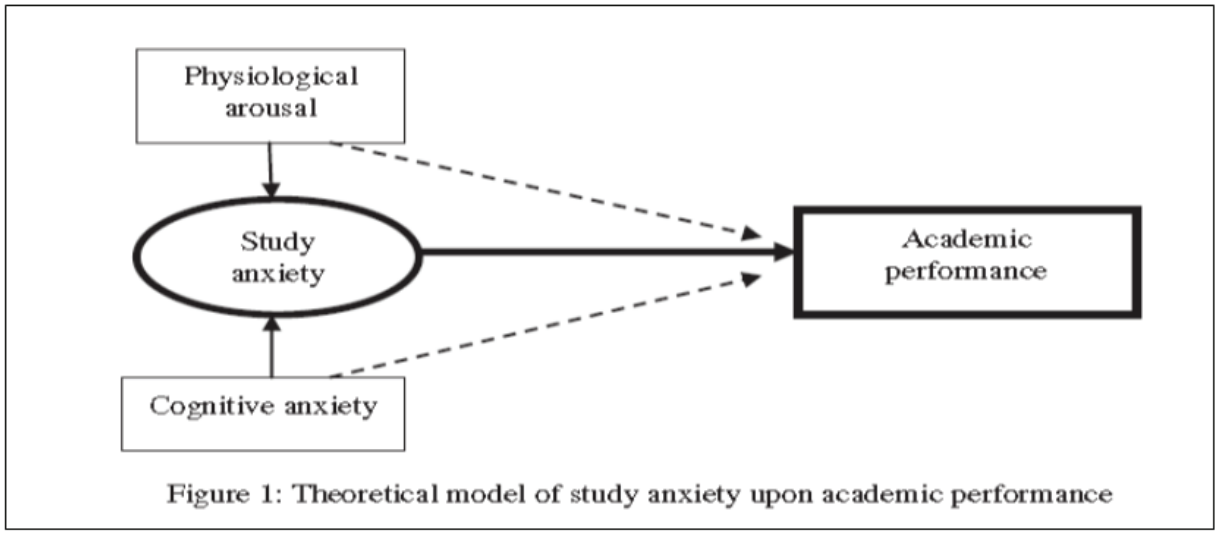

Figure 1: Theoretical model of study anxiety upon academic performance

* by Presenting, I. A. O. URCAD 2011 Student Abstracts ICMER

Subjects and Methods

A descriptive cross-sectional design was utilized in this study at the Nursing Department of Applied Medical Science College, University of Hafr Al-Batin (UHB), KSA on convenience samplingof all available nursing students available during the data collection period. The inclusion criteria of participants entail their approval to participate in the study and haven't any co-morbid diseases that affect their quality of life.

Tools:

One tool was used after revised literature divided into 3 main parts as follows:

Part (I): includes students Sociodemographic characteristics of nursing students as (age, sex, marital status, and level).

Part (II): Quality of life indicators: it includes 30 selected items adapted from ***Henry, 2011*** [11] addressing student's quality of life

Part (III): Anxiety, stress scale includes 36 items adapted from ***AL-Byirag, 2011*** [12] which used to obtain the relevant scores on the extent of anxiety and stress upset.

Scoring system of patient' satisfaction scale:

All questions in the tool were scored according to Likert Rating Scale as (strongly agree=4, agree=3, disagree =2, strongly disagree=1) and the total score of the tool was classified as levels for both stress questions and quality of life questions as considered when it was

Low <50%, Moderate 50–<75%, High ≥75%.

Content validity:

Validity was used for the modified tool to assure that it covers the objectives. The phase was developed by a Jury of five experts from Medical-surgical and Psychiatry & Mental Health nursing staff; two Assistant professors of psychiatry & mental health nursingat the College of Nursing, Qassim University and three Assistant Professors of Medical-Surgical at Nursing college, Hafr Elbatin University. Reliability of the proposed tool was done using Cronbach's alpha test which revealed high reliability (**.930)**.

A pilot study was done on 20 students to approximation the clarity of the tool then excluded them from the total sample number. The questionnaire sheet submitted online and then contact the students via their whats-up media and explain the purpose of the study to them and invited them to participate in the study though an online link also the sheet contains a paragraph explain the study aim and assuring them that their participation was voluntary and they have the right to withdraw at any time.

Statistical Analysis

Data were analyzed using the Statistical Package of Social Sciences (SPSS) Version 21. Moreover, quantitative variables were described by the Mean, Standard Deviation (SD). Qualitative variables were described by percentages. Pearson's Chi-square and Spearman's test was conducted to observe and quantify an association between different variables. Bivariate correlation was done. P-values with $p< 0.05$ considered as statistically significant.

Results

Table (1) illustrates a total of 189 students who participated in the study, nearly half (47.6%) of the students were in the third level followed by 22.8% of them in the fourth level. Additionally, nearly two-third (74.1%) of them in the age group less than 22 years. the highest number of participating students (50.7 %, 35.4) was stated that the barriers that faced in their life from family and study respectively.

Table (2) shows that 40.7 % of students faced a low level of anxiety during exams while (36.5%) of them faced a moderate level, 22.8% faced a high level of anxiety during exams with a total mean score of 96.03 ± 22.11.

As indicated in **Table (3),**74.1 % of students have a fair level of quality of life while (22.8%) of them have a poor level, 3.2% have a good level of quality of life with total mean scores of 64.31 ± 6.53.

Table 4: shows that there are statistically significantcorrelations between student's anxiety during exams and their quality of life ((p <0.001).

Table 5: shows that there are statistically significant relationships were found between student's anxiety during exams with their sociodemographic characteristics in items related to the barrier faced in life for adaptation and compliance with exams (p <0.001).

Table 6: shows that there are statistically significant relationships were found only between student's anxiety during exams with their quality of life in items related to the barrier faced in life for adaptation and compliance with exams (p <0.001).

Table (1): Distribution of sociodemographic data for study sample

Q	Sociodemographic data (n = 189)	No.	%
1	Age (years)		
	Less than 22 year	140	74.1
	More than 22 year	49	25.9
2	Levels		

Cont... **Table (1): Distribution of sociodemographic data for study sample**

	First	28	14.8
	Second	28	14.8
	Third	90	47.6
	Fourth	43	22.8
3	What are the barriers that you face in your life in all of the following respects?		
	Family	96	50.7
	Study	65	34.4
	Financial	28	14.8

Table (2): Distribution of anxiety levels during exams for nursing students

Anxiety during Exams (n = 189)	**No.**	**%**
Low <50%	77	40.7
Moderate 50–<75%	69	36.5
High ≥75%	43	22.8
Total score		
Min. – Max.	44.0 – 136.0	
Mean ± SD.	96.03 ± 22.11	
Percent score		
Min. – Max.	7.41 – 92.59	
Mean ± SD.	55.58 ± 20.47	

Table (3):Distribution of nursing students quality of life levels

Quality of life (n =198)	**No.**	**%**
Poor <50%	43	22.8
Fair 50–<75%	140	74.1
Good ≥75%	6	3.2
Total score		
Min. – Max.	46.0 – 79.0	
Mean ± SD.	64.31 ± 6.53	
Percent score		
Min. – Max.	26.67 – 81.67	
Mean ± SD.	57.19 ± 10.89	

Table (4): Correlation between nursing student's quality of life and them anxiety during Exams

(n = 198)	Quality of life	
	r	p
Anxiety during Exams	-0.518*	<0.001*

r: Pearson coefficient *: Statistically significant at $p \leq 0.05$

Table (5): Relationship between student nurse's anxiety during exams with their sociodemographic characteristics

Sociodemographic data	Anxiety during exams						χ^2	p
	Low (n = 77)		Moderate (n = 69)		High (n = 43)			
	No.	%	No.	%	No.	%		
Age (years)								
Less than 22 year	55	71.4	54	78.3	31	72.1	0.998	0.607
More than 22 year	22	28.6	15	21.7	12	27.9		
Grade								
First	12	15.6	10	14.5	6	14.0	9.659	0.140
Second	16	20.8	5	7.2	7	16.3		
Third	28	36.4	39	56.5	23	53.5		
Fourth	21	27.3	15	21.7	7	16.3		
Barriers that faced in life for adaptation with exams								
Family	8	10.4	6	8.7	15	34.9	22.354*	0.001*
Study	25	32.5	24	34.8	16	37.2		
Financial	11	14.3	15	21.7	2	4.7		

c^2: **Chi-square test***: Statistically significant at $p \leq 0.05$

Table (6): Relationship between student nurse's quality of life with their sociodemographic characteristics

Sociodemographic data	Quality of life						$\chi 2$	MCP
	Poor (n =43)		Fair (n =140)		Good (n =6)			
	No.	%	No.	%	No.	%		
Age (years)								
Less than 22 year	30	69.8	104	74.3	6	100.0	2.131	0.335
More than 22 year	13	30.2	36	25.7	0	0.0		
Grade								
First	7	16.3	21	15.0	0	0.0	10.657	0.066
Second	5	11.6	23	16.4	0	0.0		
Third	27	62.8	58	41.4	5	83.3		
Fourth	4	9.3	38	27.1	1	16.7		
Barriers that faced in life for adaptation with exams								
Family	14	32.6	14	10.0	1	16.7	29.562*	<0.001*
Study	21	48.8	42	30.0	2	33.3		
Financial	4	9.3	22	15.7	2	33.3		

c^2: **Chi-square test** MC: **Monte Carlo***: Statistically significant at $p \leq 0.05$

Discussion

Nurses considered as one of the most susceptible health team to occupational stress and sleep disorders. So, a relation between occupational stress and sleep disorders is recommended to be investigated [13] . Clinical settings are one of the mainly anxiety-producing sources which have a negative effect on learning abilities, achievements', and well-being. Thus, there is importance of nursing educators to recognize sources producing anxiety in study and clinical training and build up anxiety management interventions to ensure best learning [14] .

Concerning student's sociodemographic characteristics, the present study exposed that about nearly half of the students were in the third level followed by lower than one-quarter of them in the fourth level, nearly two-thirds of them in age group less than 22 years. Half of them were stated that the barriers that faced in their life from the family. These findings go in the same line with [15] .

As regard anxiety levels during exams, the present study revealed that near half of student nursesfaced a low level of anxiety during exams while one-quarter of them faced anexity ranged from moderate to high level during exams with a total mean scores 96.03 ± 22.11. these findings go in the same way as [16] . In Malaysia, who discovered that there was a significant correlation

of anxiety and low academic performance among engineering students.High anxiety also predicts that a student has a low ability to study. While, in Jordan, [17] reported that more than one-third of male participants had a high level of exam anxiety and half of them had a middle level.

In Oman, [18] emphasize on importance to work in partnership in nursing colleges, faculties, and develop academic counseling plan regarding anxiety management strategies to optimize students' achievements . Additionally, in Iran, [19] necessitated on there are an essential needs to take effective action for the management of anxiety among nurses students.

Therefore, in KSA, [20] revealed that there are a significant experience of moderate to severe levels of anxiety regarding exams and recommended implemented preventive coping strategies with stress and anxiety for enhanced academic achievements.

Concerning, student nurse's quality of life, the present study revealed that near two-thirds of the student's sample has a fair level of quality of life while below one-quarter of them have a poor level, and a minimum percentage has a good level of quality of life with a total mean scores 64.31 ± 6.53. These findings go in the same line with In Iran, [21] revealed that the percentage of depression incidence in men is higher than women. In contrast, current study revealed that occupational and environmental stress in nursing women was more than men. Thus, there is an obvious need to attention for the stressful reason resulting from nursing career and its preventive measures because it can cause many problems and affect their quality of life

From another point of views, [22] stated that everyone who use emotional intelligence (EI) in their daily work and life have valuable impact on their learning process, interpersonal relationships, self-esteem, emotions , and the capacity to deal with and control emotions in complex situations.

Regarding the correlation between student's anxiety levels and their quality of life, the current study revealed that there is a statistically significant correlation between student's anxiety during exams and their quality of life. This finding goes in the same line with [23] that necessitates that bad physical and mental health of the college students could be related to extreme stress from college study manner. So, essential measures should be taken to develop and enhance student's physical and mental health.

Regarding the correlation between student's anxiety levels with their sociodemographic characteristics and quality of life, the current study revealed that there are statistically significant relations were found between student's anxiety during exams and quality of life with their sociodemographic characteristics in item only related to the barrier faced in life for adaptation and compliance with exams. These findings go in the same line with [24] who reported that there are short-term impact of multidimensional stress prevention programs on psychological symptoms and quality of life as well as promising factors associated with stress experience.

In contrast, [25] recommended That perceived stress, self-compassion, state of health, and satisfaction with school life considered as the main factors that influencing the quality of life. Thus, nursing college students should search for methods to diminish their perceived stress as well as increase self-compassion with preventive strategies to improve their quality of life. While, [22] suggested that successful strategies principally focusing on improving depressive symptoms along with health behaviors to decrease the negative impact of stress on QoL.

Additionally, In Iran, [26] emphasized that enhancing academic motivation and applying of family–relation management strategies with determining factors that affecting stress , self-efficacy, and academic achievements' can protected students against academic burnout.

In contrast, In Norwegian**,** [27] reported that there is a negative association between stress and quality of life among students especially with the lowest levels of sense of coherence.

In Malaysia, [1] concluded that the Majority of first-year nursing students experienced test anxiety. Thus, mind-body interventions to get helped to have normal

anxiety during their exams; the faculty, lecturer, or advisor should find out the main factors causative test anxiety and also should have some preventive anxiety programs for those students. While, In Iran, [28] stated that recently, anxiety, stress, and depression are extremely widespread for susceptible individuals to problems every day. Mental health impacts various life dimensions including one's work and family life and recommended that nurse managers have the supreme role in developing proper intervention programs to ease workload, make regular shift schedules, and provide positive reinforcements for nurses to diminish anxiety, stress, and depression.

Finally, In KSA, [29] necessitate on make sure the highest level of health and well-being among nursing students while they are undergoing clinical training and construct policy rules in nursing institutions in Saudi Arabia centered on the holistic development of nursing students.

Conclusion & Recommendations

Based on study findings we can conclude that there is a statistically significant correlation between student's anxieties during exams with their quality of life. Also, there are statistically significant relations were found between student's anxiety during exams and quality of life with their sociodemographic characteristics in items only related to the barrier faced in life for adaptation and compliance with exams. From the foregoing conclusion, students must receive regular; periodic in-service psychological rehabilitative program contains methods of adaptation and compliance with exams which indirectly promote their quality of life. There is an obvious need for designed exams information quality, enjoyment, and environment preparation. Further studies are needed to study the factors that influence university students' quality of life and coping with the period of exams rather than anxiety and stress.

Acknowledgement: Our appreciation and gratitude and gratitude to students who agreed to participate in the study and gave us the opportunity to accomplish the study.

Ethical Clearance: An official authorization was allowed from Applied Medical Sciences College, University of Hafr Albatin administrative authority at Kingdom Saudi Arabia as a responsible committee in this institution, to get their authorization to conduct the study after clarifying the reason for the study. Additionally, the participants were informed of research purpose and their answers would be kept confidentially and the answers not affect or interfere with their evaluation.

Source of Funding: There are No funding budget from any institution and this research fund are done from researches

Conflict of Interest: There are No conflicts of interest

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Effect of Fetal Movement Count Training (FMCT) on Prenatal Bonding and Maternal Anxiety among Primigravida Women

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Abstract

Background: Fetal movements can have positive effects on maternal-fetalattachment before birth, because the fetusis more tangible with the mother after movement. Daily fetal movement counting is a simple and non-invasive method that can be carried out by the mother in order to improve the maternal fetal attachment and toreduce the maternal anxiety for the better pregnancy outcome.

Objectives: The main objective of the study was to assess the effect of fetal movement count training on prenatal bonding and maternal anxiety among primigravida.

Methods: Quantitative approach with true experimental research design was adopted. Total 173 pregnant women were selected for the study using purposive sampling technique. Subjects were randomly assigned in to the experimental (n=87) and control group (n=86). Fetal movement count training was given to experimental group. The training includes both instructions and demonstration on fetal movement count. Booklet contain the steps of fetal movement count and 28 days counting chart was provided to the pregnant women to make the them adhere to the count.The tools used to collect the data were as follows: (1) Demographic questionnaire, (2) Maternal Antenatal Attachment Scale and (3) Self structured Anxiety Scale. Baseline assessment was done on the 1st day and the training was implemented on the same day. Mothers were followed through phone calls. Post-assessment was done after 28days. The data wereanalysed using descriptive and inferential statistics.

Result: The mean post-test prenatal bonding score in experimental group is 81.90±5.969 and in control group is 77.57±7.459 which shows the significant difference in prenatal bonding score between both the groups ($t = 4.215$ $p = 0.00002$). The mean post-test maternal anxiety score is prenatal bonding score in experimental group is 34.69±6.719 and in control group is 35.17±6.809 which is not showing any significant difference between both the groups ($t = 0.471$ $p = 0.3191$). There was a moderately negative correlation found between pre-test prenatal bonding and maternal anxiety score as evidenced by $r= -0.277$ at $p=0.0002$ which was statistically significant.

Conclusion: Thus, the training regarding fetal movement count was effective in improving prenatal bonding and reducing maternal anxiety among primigravida.

Keywords: *Primigravida, prenatal bonding, maternal anxiety and fetal movement count training.*

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Introduction

Through bonding with a baby thepregnant womanexperiences feelings and emotions for her fetus, interacts with her fetus and develops a maternal identity.[1]It is estimated that about 8-15% of women who feel the fetal movements early in pregnancy, may have

more attachment to their babies.[2]Fetal movements can have positive effects on attachment before birth, because the fetus will be more tangible with the mother after movement. The mothers with higher levels of attachment feel the more fetal movements.[3,4]

Maternal-foetal attachment (MFA) is a term which describes the relationship between a pregnant woman and her fetus. Mothers with high MFA show more confidence in their new role and a better postpartum adjustment. [2] Counting fetal movements may also help to timely assessment offetal health and to prevent the adverse pregnancy outcome, but it may also contribute to maternal concern. [5]

A change in the normal pattern or number of fetal movements may indicate the fetus is under stress. As 55% of cases of still birth are associated with DFMC (Decreased Fetal Movement Count) and 30% of stillbirths are due to IUGR (Intra Uterine Growth Retardation). [6]

WHO (World Health Organization)estimated that over 80% of the women with low-risk gestation have experienced some degrees of anxiety in their pregnancy. Of 3–5 pregnant women in developing countries undergoes anxiety problems during pregnancy. This is 1 of 10 pregnant women in developed countries.[7]

Maternal anxiety is directly related tofetal movement counting.As the mother counts her fetal movement perfectly, it lowers the anxiety level mainly observed in primi mothers. There is a bidirectional relationship between maternal emotional wellbeing and level of fetal activity. The counting of fetal movements is an unstructured, inexpensive and easy method which is done by the mother with or without the administration of doctor or health care providers. [8,9]

Prenatal bonding is directly related with fetal movement counting. This can be done by counting the fetal movements.[10]Daily fetal movement counting is a simple and non-invasive method that can be carried out by the mother in order to improve the maternal fetal attachment and to reduce the maternal anxiety for the healthy pregnancy outcome.[12] Educational methods can be effective in reduction of mother's anxiety and improvement of fetal movements.[5]

There are very limited studies are available to assess the effect of fetal movement count training on prenatal bonding and anxiety. Hence, the researcher undertaken this study.

Methods and Materials

Quantitative approach with true experimental research design was adopted to test the effect of fetal movement count training on prenatal bonding and maternal anxiety among primigravida women. The present study was carried out in the Obstetrics and Gynecology OPD of IMS & SUM Hospital, Bhubaneswar, Odisha. Primigravida womenwith more than 28 weeks of gestation, perceive fetal movements, are willing to participate in the study and able to understand and speak Odia language were included in the study. Primigravidawomen having high risk pregnancy, psychological disorder and underwent traumatic stress in the past 6 months were excluded from the study.Total 173 pregnant women were selected for the study by using purposive sampling technique. Subjects were randomly assigned to the experimental (n=87) and control group (n=86). Before conducting study,ethical permission was taken from the Institutional Ethical Committee (IEC) and administrative permission was taken fromIMS & SUM Hospital. The tools used to collect the data were as follows: (1) Demographic questionnaire, (2) Maternal Antenatal Attachment Scale and (3) Self structured Anxiety Scale.The reliability value of Maternal Antenatal Attachment Scale is r = 0.978 and Self structured Anxiety Scale is r = 0.812. Baseline assessment was done on the 1st day and the training was implemented on the same day. Fetal movement count training was implemented on experimental group. The training includes both instructions and demonstration. Booklet contain the steps of fetal movement count and 28 days counting chart was provided to the pregnant women to make the them adhere to the count.Mothers were followed through phone calls. Post-assessment was done after 28 days. Data was collected by interview schedule. The data analysed using descriptive and inferential statistics with SPSS 21 version.

Result

Demographic characteristics of pregnant women shows that highest percentage of pregnant women from experimental group (37.9%) and control group (47.7%) belongs to the age group of 24-28 years. Highest percentage of pregnant women from experimental group (52.9%) and control group (46.5%) completed graduation and above. Highest percentage of pregnant women from experimental group (35.6%) and control group (38.4%) had their duration of married life <1year. Most of the pregnant women from experimental group (93.1%) and control group (83.7%) had satisfied married life. Most of the pregnant women from experimental group (91.6%) and control group (75.6%) were housewives. Highest percentage of the women from the experimental group (52.9%) and control group (55.8%) were belongs to joint family. Highest percentage of the women from the experimental group (37.9%) and control group (38.4%) were belongs to joint family.

Table-1:Comparison of level of prenatal bonding in experimental and control group.

n =87, 86

Level of prenatal bonding	Pretest score				Post test score			
	Experimental group		Control group		Experimental group		Control group	
	f	%	f	%	f	%	F	%
60-71(Poor attachment) 72-83(Average attachment) 84-95(Good attachment)	26 48 13	29.9 55.2 14.9	23 46 17	26.7 53.5 19.8	04 48 35	4.6 55.2 40.2	24 43 19	27.9 50.0 22.1

Table-1 shows the comparison of level of prenatal bonding in experimental and control group. In pretest, 14.9% of women from experimental group and 19.8% from control group had good attachment. Whereas, in post test 40.4% of the women from experimental group and 22.1% from control group had good attachment. This shows the effectiveness of training.

Table-2:Comparison of level of maternal anxiety in experimental and control group.

n =87, 86

Level of maternal anxiety	Pretest score				Post test score			
	Experimental group		Control group		Experimental group		Control group	
	f	%	f	%	f	%	f	%
20-33(Mild anxiety) 34-47(Moderate anxiety) 48-60(Severe anxiety)	17 52 18	19.5 59.8 20.7	32 45 09	37.2 52.3 10.5	36 46 05	41.4 52.9 5.7	37 41 08	43.0 47.7 9.3

Table-2 shows the comparison of level of maternal anxiety in experimental and control group. In pretest, 20.7% of women from experimental group and 10.5% from control group had severe anxiety. Whereas in posttest, only 5.7% of the women from experimental group and 9.3% from control group had severe anxiety. This shows the effectiveness of training.

Table-3: Comparison of mean prenatal bonding and maternal anxiety score within experimental and control group.

n =87, 86

Criteria	Mean ± SD Pretest	Post test	t test	df	p value
Level of prenatal bonding in Experimental group	75.30±6.383	81.90± 5.969	16.764	86	0.00001
Level of prenatal bonding in Control group	76.22±7.897	77.57±7.459	5.873	85	0.237
Level of maternal anxiety in Experimental group	41.70±7.106	34.69± 6.758	16.685	86	0.0001
Level of maternal anxiety in Control group	36.51±7.308	35.17±6.809	1.025	85	0.3082

Paired t test, df = 86, 85, $p \leq 0.05$ level.

Table-3 shows the comparison of mean prenatal bonding and maternal anxiety score within experimental and control group. The mean posttest prenatal bonding score in experimental group has significantly increased as compared to pretest score (t=16.76, p=0.00001) and mean posttest maternal anxiety score in experimental group has significantly reduced as compared to the pretest score (t=16.68, p=0.0001). Whereas, in control group there was no significant difference observed. Since, it can be interpreted that training given was effective to reduce the anxiety and improve the prenatal attachment in experimental group.

Table-4:Comparison of mean posttest prenatal bonding and maternal anxiety score between experimental and control group.

n =87, 86

Criteria	Mean ± SD	SEM	t test	df	p value
Level of prenatal bonding in Experimental group Level of prenatal bonding in Control group	81.90±5.969 77.57±7.459	1.027	4.215	171	0.0002
Level of maternal anxiety in Experimental group Level of maternal anxiety in Control group	34.69±6.719 35.17±6.809	1.028	0.471	171	0.3191

Independent t test, df = 171, $p \leq 0.05$ level.

Table-4 shows the comparison of mean prenatal bonding and maternal anxiety score between experimental and control group. The mean posttest prenatal bonding score in experimental group is higher as compared to mean posttest prenatal bonding score in control group (t=4.215, p=0.0002). Whereas, in maternal anxiety score there was no significant difference found between two groups. Since, it can be interpreted that training given was effective to improve the prenatal attachment in experimental group.

Table 5: Correlation between pretest scores of prenatal bonding and maternal anxiety.

n=173

Variable	r value	p value
Level of prenatal bonding Level of maternal anxiety	-0.299	0.00064

Table-5 shows the correlation between pretest scores of prenatal bonding and maternal anxiety. It revealed that there was moderately negative correlation between level of prenatal bonding and maternal anxiety. Hence, it can be interpreted that as the prenatal bonding increases, maternal anxiety reduces.

Chi square test was computed to find the association between the level of prenatal bonding and selected socio demographic variables. There was a significant association found between the educational qualification (χ^2=9.044, 0.0006)and occupation (χ^2=11.713, 0.0028). And the association between the maternal anxiety and socio demographic variables shows that there was a significant association found between occupation (χ^2=12.454, 0.001) and family monthly income (χ^2=15.949, 0.0431).

Discussion

In present study, highest percentage of pregnant women from experimental group (37.9%) and control group (47.7%) belongs to the age group of 24-28 years. Munasilwal et al also stated in his study that majority of the antenatal mothers (38%) were in the age group of 24-29years.[11]

In the present study, most of the pregnant women from experimental group (91.6%) and control group (75.6%) were housewives.Mohamed El-Sayed et al also found in his study that majority of the study sample 73% from experimental group and 64% from control group were housewives. [12]

In the present study, there was a significant improvement in prenatal bonding and reduction in maternal anxiety after fetal movement count training. RincyK. et al (2014)stated that there was a statistically significant improvement in the prenatal attachment at the level of p<0.001 in the study group between pretest and posttest. The independent t test denotes a highly significant statistical difference between the groups at p<0.001. This indicates improvement in the Pai scores in the study group after the intervention. [13]

Neethu Thomas et al stated that the mean difference between prenatal attachment pre-test score and post test score was 2.32 with paired't' test value 6.3, p<0.05 is found to be significant. It was inferred that there was a significant improvement of prenatal attachment after daily fetal movement counting. [14]

Marzieh Akbarzadeh et al stated that women in the case group experienced significantly less anxiety and more maternal fetal attachment after learning attachment behaviours (p = 0.003, p<0.001). No significant changes were found in the control group.[6]

The findings of the present study revealed that there was moderately negative correlation of post-test result between level of prenatal bonding and level of maternal anxiety.Neethu Thomas stated that there was significant negative relationship between prenatal attachment and maternal worries among primigravida mothers with the correlation coefficient between prenatal attachment and maternal worries was -0.259 and it was equal to the table value t(58): 0.2500. [14]

Conclusion

The findings of the study suggest that the training regarding fetal movement counting was effective in increasing the level of prenatal bonding and reduce the maternal anxiety among primigravida mothers.So fetal movement count training regarding shall be routinely provided to all the pregnant women to improve prenatal bonding and reduce maternal anxiety which will improve the pregnancy outcome.

Conflict of Interest- None

Ethical Permission- Approved

Funding- None

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Logistic Regression on Physical Activities Analysis Related to Depression in Elderly

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Abstract

Background: The risk of depression in the elderly is currently exacerbated by the health situation of the Coronavirus Disease 2019 (COVID-19) pandemic that has reached the entire world, including Indonesia. The imposition of physical distancing and restrictions on activities outside the home will have an impact on discomfort for all individuals, including the elderly. The elderly are forced to stay in their respective homes that causes reduced physical activity. If this condition continues, it can reduce endurance, cause discomfort, boredom, anxiety, and depression in the elderly.

Objective: This study aimed to identify the effect of physical activity on of depression in the elderly at Integrated Health Center (Posyandu), Kasin Sub-District, Working Area of Puskesmas Bareng, Malang City.

Methods: This type of analytic correlative research was categorized as a quantitative survey type with cross sectional design. The sample was 54 elderly aged 60 years taken by random sampling. The instruments used were the Geriatric Depression Scale for screening depression incidents and the questionnaire for assessing demographic data and physical activity. Data were analyzed using multivariate logistic regression method.

Results: Exercising, doing outwork had a significant effect on the occurrence of depression in the elderly, with a sig value of exercising 0.004 and doing homework at 0.047. exercise can reduce the risk of depression by 99% and doing homework can reduce the risk of depression by 10%.

Conclusion: Elderly should keep doing homework every day and keep in exercising regularly every week to reduce the risk of depression during the Covid-19 period.

***Key words**: Physical activity, depression, elderly*.

Introduction

The aging process in the elderly is signed by physical changes accompanied and the decrease of various body functions. Physical changes and decreased body function are normal conditions that occur with increasing age in the elderly[1]. Physical changes and decreased bodily functions can also appear as health problemsphysical and psychological aspects of the elderly[2]. Physical health problems are closely related to the ability of the elderly to carry out daily physical activities (Activity Daily Living)[2]. The literature study showed that there is a tendency for the elderly to limit their activities due to decreased health[3,4]. Physical activity is defined as every movement of the body produced by the musculoskeletal system that requires energy as input in carrying out physical activities, including daily activities such as performing household chores, traveling, work activities, sports, recreational and playing activities[5]. Regular physical activity, both light and moderate has been found to be effective in delaying the body functions that begin

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to appear in late adulthood to old age. The benefits that can be obtained from regular physical activity include increased body coordination, flexibility, improved sleep quality, decreased depression and anxiety, and increased overall psychological condition[5,6].

Depression means emotional disturbance that is shown through the emergence of feelings of depression, unhappiness, sadness, feeling worthless, lack of enthusiasm, meaningless and pessimistic about the life that is being lived. In the elderly, depression can occur because of many things including economic that is not guaranteed by the family so that the elderly still have to work, fear of being alienated from the family, fear of being ignored by their children. The risk of depression increases in the elderly who experience chronic diseases and long periods of care[7].

The risk of depression in the elderly is currently exacerbated by the health situation of the Coronavirus Disease 2019 (COVID-19) pandemic which has reached the entire world, including Indonesia. Efforts to prevent the transmission of COVID-19 that have been implemented for all levels of society including the elderly, including physical distancing, maintaining hand hygiene, implementing cough / sneezing ethics, using masks, limiting outdoor activities, ensuring access to public hygiene in public facilities[8]. The imposition of physical distancing and restrictions on activities outside the home will have an impact on discomfort for all individuals, including the elderly. The elderly are forced to be in their respective homes which causes reduced physical activity, especially reduced interactions and social activities that are routinely carried out by the elderly. Reduced long-lasting physical activity in the elderly can reduce endurance, cause discomfort, boredom, anxiety, depression and reduce cognitive function in the elderly[9].

Data from WHO Asia Pacific region (WHO SEARO) in 2017 showed that the number of cases of depressive disorders in Indonesia was 9,162,886 cases or 7.7% of the population. Riskesdas 2018 data showed the prevalence of mental emotional disorders that indicate symptoms of depression and anxiety reaching 6.1% for those aged 15 years and over of the total population of Indonesia. The ability to carry out physical activity of the elderly in Indonesia is shown through the 2018 Riskesdas data, namely 80.30% of the elderly in the 60-69 year group active independently, 68.09% in the 70-79 year age group and 50.04% in the over 80 years group.

The results of research conducted by previous researchers in 2019 regarding the Relationship between Physical Activity and Cognitive Function in the Elderly in one of the Posyandu in the working area of the Puskesmas Bareng, Malang City, obtained data on the physical activity of the elderly. as follows from 51 elderly a number of 35 elderly (68 6%) rarely exercised, 38 elderly (74.5%) performed light work, 28 elderly (54.9%) performed heavy work, 38 elderly (74.5%) used stairs, 38 elderly (74, 5%) did not participate in social activities, 12.67% of the elderly were at risk of experiencing depression and a number of 4.92% of the elderly experienced depression. This study aimed to analyze the relationship between physical activity and depression in the elderly.

Materials and Methods

Study design

The type of research used was correlative analytic categorical quantitative survey type with cross sectional design. Survey research was research that took samples from many respondents to answer the same questions, measure many variables, formulate hypotheses, and draw conclusions based on the events from questions about beliefs, opinions, experiences, and characteristics in the past[10]. The study examined the dependent and independent variables at the same time. Each respondent will be assessed their daily physical activity and identified possible depressive events.

Research subject

This study involved elderly who were over 60 years old and had lived at least 1 year in their residence and were willing to become respondents with the exclusion criteria being elderly who did not understand Indonesian language and experienced mental disorders (psychosis).

Instrument

The instrument used in the study consisted of the Geriatric Depression Scale (GDS) that was used to screen for depression in the elderly. The questionnaire was used to assess the physical activity routinely carried out by the elderly every day including exercise habits, homework activities and involvement in social activities, as well as a questionnaire on demographic data for the elderly.

Data collection

The data used in this study were primary data obtained directly from the elderly in January 2021. Researchers obtained random respondents based on the opportunities. Researchers and health cadres collected data one by one using Google Form media and using video call media on mobile phone applications to study data related to physical activity and depression incidence in the elderly.

Ethical considerations

This research was conducted by concerning the legal aspects of ethics for the elderly, namely by maintaining the confidentiality of the data on the data of each research subject (anonymity), providing information concentrations as evidence of the respondent willingness to be involved in research, as well as conveying the aims and objectives of the study, asking about the health conditions of the elderly. whether at the time the data collection will be carried out by the elderly under possible conditions.

Data Analysis

Data analysis was carried out based on the following research framework:

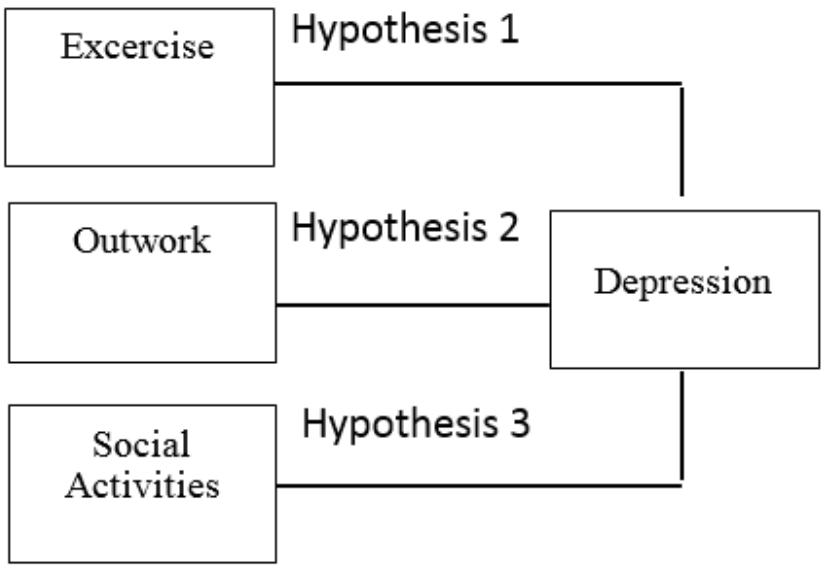

Figure 1. Hypothesis Framework

Based on the framework of the research hypothesis, the hypothesis is that each activity, namely exercising, performing outwork and participating in social activities, is thought to influence the incidence of depression. Logistic regression analysis was performed by multicollinearity test, regression model feasibility test, overall fit model, Hypothesis test, and Wald test.

Results

The results of elderly charateristics assesment showed that 37.04% of elederly aged 66-70 years and 59.26% were female; 75.93% was elementary education; 42.59 % was still working; 70.37% suffering from disease; 90.74% did not use device . Characteristics

of physical activity obtained that 48.15% performed excercise more than 3 times per week; 25.93% performed heavy outwork ; 55.56% did not participate in social activities. The results of logistic regression analysis showed the following results:

1. Multicollinearity test

Correlation matrix results showed that all correlation coefficient values were less than 0.8, so it can be concluded that the model did not contain multicollinearity (exercise -0.755; outwork -0.388 and -0.676 social activities.

2. Feasibility test of the regression model

Hosmer and Lemeshow test table showed the significance value of the feasibility of the model of 0.164 with a significance value> 0.05, it indicated that the regression model formed was able to predict the observed value well and match the observation data.

3. Overall fit models

The initial -2LL value was 50,802 and after the addition of the independent variable the final -2LL value was 49,212, indicating a decrease in the -2LL value of 1.59. It showed that the hypothesized regression model fit with the data.

4. Partial test (T)

By using a significance level of 5% obtained the sig variable exercise value 0.047 <0.05; outwork variable sig value 0.004 <0.05; and the sig variable value in performing social activities 0.183> 0.05. The variable exercising and doing outwork can significantly affected the incidence of depression in the elderly.

5. F-Test

The chi Square model value was 25,648 with a significant value of 0.000. A significant value of 0.000 <0.05 showed that the exercise, performing outwork k and performing social activities simultaneously had a significant effect on the incidence of depression.

6. Coefficient of determination

The Cox & Snell R Square value of 0.378 showed the amount of effective contribution given by the exercising, peforming outwork, and social activities to the incidence of depression that was 37.8%. The Negelkerke R Square value in the regression model was 0.504, indicating the variance of the depression variable which can be explained by the variables of exercising, doing homework and social activities, the remaining 50.4% was influenced by other factors outside the model.

7. Wald test

The coefficient value of the Wald test variable in performing the outwok, exercising and participating in social activities was positive, it means that the three variables had a positive effect on the incidence of depression.

8. Model

Ln (Depression) = 3,556 - 0,998 Activity - 1,059 Exercise + 1,007 SOS Activity + e

Discussions

1. Effect of Exercise on Depression

Based on the results of hypothesis 1 from the logistic regression analysis , it is known that there is a relationship between exercise and the incidence of depression in the elderly. The Wald test value was 0.047 (p <0.05) showed that exercise had a significant effect on depression incidence. Exercising such as doing yoga and meditation is a form of lifestyle modification that needs to be done by the elderly[11]. A study conducted by Wipfli and Landers states that exercise has the potential to facilitate neurogenesis in the hippocampal mechanism. Exercise can also increase B-endorphins, vascular endothelial growth factor, Brain Derived Neurothrophic Factor (BDNF) and serotonin, so it can be said that exercise has the potential to be an effective approach to healing and as a preventive measure for depression[12].

2. Effects of Performing Outwork on Depression

Based on the results of hypothesis 2 from the ordinal logistic regression analysis, it is known that there is a relationship between performing outwork and the depression. The Wald test value was 0.004 (p <0.05), showed that performing outwork had a significant effect

on the incidence of depression.

Doing light and heavy outwork at home such as cleaning the room, shopping, sweeping the house and even gardening is a form of physical activity that can accelerate the metabolic process of neurotransmitters, where the basic ingredients of neurotransmitters are amino acids which are one of the nutrients for the brain and have an important function in increasing alertness, reduce mistakes and promote thinking. This neurotransmitter process will stimulate the neurogenesis process and maintain brain plasticity (the brain's ability to make new interconnections to nerves), where this process plays an important role in inhibiting hypertrophy of brain tissue which can cause neural degeneration which has an impact on cognitive[13,14]. Studies show that depressive symptoms are closely related to poor cognitive abilities in the elderly, therefore it has been agreed that successful strategies to reduce depression will automatically improve cognitive function[14].

3. The Effect of Participating in Social Activities on the Depression

Based on the results of hypothesis 3 from the multivariate logistic regression analysis, there was no relationship between participating in social activities and depression in the elderly. The resulting Wald test value was 0.183 ($p > 0.05$) that indicates the following social activities had no effect on the incidence of depression in the elderly.

The results of a study conducted by the University of California Los Angeles (UCLA) western state showed that the estimated prevalence of long-standing loneliness in the elderly using the Loneliness Scale (LS) showed a range of 11.5% -43%. As the elderly get older, they often tend to lose the active role they did before and at this stage the elderly enter a passive role that makes them feel they are not quite like their previous condition. These conditions include being stopped from work, financial instability, and the surrounding situation, such as whether there is family support or not, tends to trigger loneliness in the elderly.

In this study, it is also stated that being old is not the only factor responsible for the occurrence of a person feeling lonely, there are several other factors such as marital status, education, work status, finance and the environment where the elderly live also play a role in feelings of loneliness in the elderly. Interaction with the environment is different from feelings of loneliness which directly contribute to depression in the elderly[15].

Conclusions

Elderly is expected to participate in preventing depression by maintaining the achievement of physical activity that has been done every day. The family as a support system for the elderly provides support and facilitates the elderly to be able to maintain their daily activities and exercise routinely according to the conditions and abilities of each person.

Acknowledgements: Author would like to thank you to all the elderly who were involved in my research, also the elderly health cadre who helped a lot in data collection and Head of Puskesmas Bareng Malang City and the person in charge of the elderly health program who provided many facilities and direction for research this.

Conflict of Interest: The authors declare no conflict of interest.

Ethical Clearance: Informed consent was obtained from the Clinical Administrators, the confidentiality and anonymity of the subjects and information gathered.

Source of Funding: This research fully funded by Panti Waluya College Of Health Sciences.

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A Study to Assess the Effectiveness of Facilitated Tucking Position on Pain Perception among Neonates During Vaccination in Selected Hospital of Panipat, Haryana

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Abstract

Background and Objective: A study was done to assess the effectiveness of facilitated tucking position on pain perception among neonates during vaccination in selected hospital of Panipat. **Material & Methods:** The methodology of the present study was true experimental research design. Sample size of the study was 60 neonates during vaccination selected with random sampling technique. 30 neonates in each group was held in the facilitated tucking position & in routine care during Hepatitis B vaccination. NIPS was used for data collection. Data collection method was interview & observation method; data analysis was done with the help of descriptive and inferential statistics. **Result**: The mean pain scores of neonates vaccinated in the facilitated tucking position (2.53±1.042) were significantly statistically lower than the scores of neonates vaccinated in the routine position (5.80±0.925) ($p<0.05$). **Conclusion**: The pain perceptions of neonates held in the facilitated tucking position during Hepatitis B vaccination were lower. The facilitated tucking position is a non-pharmacological method & recommended as an effective and useful method for reducing pain during the procedure.

Keywords: *Facilitated tucking position, Neonates, Pain perception & Vaccination.*

Introduction

Neonate refers to an infant within the first 28 days after birth. They may look tiny and fragile but are never underestimated by their appearance. Neonates are subjected to various degrees of discomfort. They lose body heat more easily, faces troubles in feeding, underdeveloped organs suck which place them under various complications. Pain is an acute stress that leads to disequilibrium in the physical, physiological, emotional and behavioural parameters to various degree of severity. Neonates are highly sensitive to pain & more vulnerable to the effects of repeated painful stimuli, exposing them to possible short term as well as long-term developmental and psychological problems in later part of childhood.[1]

Neonates are unable to communicate pain verbally and hence are commonly unrecognized and left untreated.[1] Attention should be paid to non-verbal indications during communication established with neonates. Physiological parameters, behavioural methods, and stress hormones have been evaluated to define the pain felt by neonates.[2]

Vaccine are the most effective and safe way to protect neonates from life-threatening diseases.[3] Vaccinations, the most common source of iatrogenic pain in neonates, are administered repeatedly throughout infancy, childhood and adolescence.[4] Minimizing pain during neonatal vaccination can help to prevent distress, development of needle fears.[5]

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Neonates experience pain and exhibits various physiological and behavioural response during painful procedures. Such painful expressions are pampered by unsterilized pacifiers, blind administration of sucrose solutions. Non pharmacological technique distracts the neonates by grabbing their attention.[1] Reducing light, noise, changing positions & providing direct support like touching the infant are part of the developmental care program, aimed at increasing the infant's energy to cope with painful procedures & better adapt to the life stress out of the womb are recommended as one of the pain management strategies.[6]

Facilitated tucking is one of the simplest, safe non-pharmacological and cost-effective techniques to prevent the complications of unattended painful response simulating the condition of being in uterus. This makes the neonate comfortable, more secure with controlled response. It facilitates self-regulation by decreasing the physiologic response like prolonged heart rate elevation that contributes to the disequilibrium associated with pain and stress. Facilitated tucking improves the emotional security and reduces the pain perception.[1]

The researcher through her clinical experience understood the physiology of pain in neonates during vaccination. These painful responses remained neglected since neonates are unable to communicate their intensity of pain. The researcher adopted facilitated tucking as the comforting measure to reduce procedural pain that confines the neonate and prevent the long-term consequences of repeated painful stimuli.[1]

This study was conducted with the following objectives:

1. To assess the effectiveness of facilitated tucking position on pain perception among neonates during vaccination in experimental and control group.

2. To find out the association between pain perception among neonates during vaccination in experimental and control group with selected socio demographic variables.

Material & Method

A quantitative research approach having true experimental post test only research design adopted for the study. Total 60 neonates (30 in each group) undergoing Hepatitis B vaccination at Civil hospital, Panipat, Haryana were selected by Simple random probability sampling technique. Tool comprised of: Socio demographic profile, consisted of 6 items used to collect information about gender, gestational age, birth weight (g), length of neonate (cm), method of delivery, type of feed before painful vaccination. Neonate Infant Pain Scale (NIPS) is used to assess the pain perception among neonate during vaccination. The scale consists of one physiological section & five behavioural section, including facial expression, cry, breathing pattern, arm & leg movements & state of arousal. The cry section is scored between 0 & 2 points & other sections are scored between 0 & 1 point. The total score varies between 0 & 7 points & a higher score indicates severe pain. In order to measure the validity of tool, they were given to eight experts from the field of nursing as well as medical. The reliability of the tool was evaluated with the help of split-half (odd-even) correlation method & Cronbach's Alpha method. It was found to be 0.94 & 0.8 indicating that the tool is highly reliable. Permission letter was obtained from the ethical committee of the institute. Data was collected in the month of January 2020 for 4 weeks at immunization/vaccination room of Civil hospital, Panipat, Haryana. Written permission was obtained from the CMO of the Civil hospital, Panipat, Haryana.

Informed consent was obtained from the parents of the neonate. Good IPR was maintained with the parents after self-introduction, nature & objectives of the study was explained to obtain maximum cooperation. 70% alcohol was used to clean the site of vaccination for each group. Both the group neonate is vaccinated by same health care provider. All the neonate during vaccination are in care giver lap. For assessing the pain perception, the neonate in experimental group was given facilitated tucking position 1 min before the administration of Hepatitis B vaccination. Routine care was performed on the neonates in the control group before the administration of Hepatitis B vaccination. Researcher observe & scored the NIPS by evaluating the

pain experienced by the neonate.

Results & Discussion

Table 1: Frequency distribution of Neonatal Infant Pain Scale (NIPS) among samples in experimental and control group. (N=60)

Characteristics	Experimental Frequency (f)	Control Frequency (f)
Facial expression		
a. Relaxed muscles	8	1
b. Grimace	22	29
Cry		
a. No cry	0	0
b. Whimper	23	.10
c. Vigorous cry	7	20
Breathing pattern		
a. Relaxed	17	5
b. Change in breathing	13	25
Arm movements		
a. Relaxed/ Restrained (with soft restrains)	30	0
b. Flexed/ Extended	0	30
Leg movements		
a. Relaxed/ Restrained (with soft restrains)	30	0
b. Flexed/ Extended	0	30
State of arousal		
c. Sleeping/Awake	26	20
d. Fussy	4	10

Table 2 Comparison on level of pain perception among experimental group and control group. (N=60)

CRITERIA MEASURE OF PAIN SCORE		
Pain score	**Experimental Frequency (f)**	**Control Frequency (f)**
Severe (5-7)	0	26
Moderate (3-4)	16	4
No pain (0-2)	14	0

Table 3 Level of association among neonates during vaccination with selected socio demographic variable in experimental & control group. (N=60)

S. No	Socio Demographic data	Association with experimental group pain score				Association with control group pain score			
		Chi Test	'p' Value	df	Table Value	Chi Test	'p' Value	df	Table Value
1.	**Gender** a. Male b. Female	6.467	0.001	1	3.841*	0.632	0.427	1	3.841^{NS}
2.	**Gestational age** a. Term b. Pre term c. Post term	0.241	0.886	2	5.991^{NS}	0.663	0.718	2	5.991^{NS}
3.	**Birth weight (g)** a. 1500-2000 b. 2000-2500 c. 2500-3000 c. >3000	0.599	0.897	3	7.815^{NS}	3.462	0.326	3	7.815^{NS}
4.	**Length of neonate (cm)** a. <45 b. 45.1-47 c. 47.1-49 d. >49	1.250	0.535	2	5.991^{NS}	0.007	0.935	1	3.841^{NS}
5.	**Method of delivery** a. Normal vaginal delivery b. Cesarean delivery c. Vacuum delivery d. Forceps delivery	2.917	0.233	2	5.991^{NS}	2.596	0.107	1	3.841^{NS}
6.	**Type of feed before painful vaccination** a. Breast feed b. Formula feed c. Mixed feed	2.237	0.327	2	5.991^{NS}	0.710	0.701	2	5.991^{NS}

The present study revealed that the mean ± SD score of pain was 2.53 ±1.042 in neonates who underwent painful vaccination with facilitated tucking position was significantly less than mean ± SD score of pain was 5.80 ± 0.925 in neonates who underwent painful vaccination in the hospital routine. In present study the calculated unpaired 't' test value was 12.845 which was found to be highly statistically significant at $p < 0.001$ level which indicates that facilitated tucking is effective in reducing pain during vaccination. Findings were contrary to the study by Kucukoglu S et al [2] the mean pain scores of infants vaccinated in the facilitated tucking position (2.83±1.18) were significantly statistically lower than the scores of infants vaccinated in the classical holding position (6.47±1.07) ($p<0.05$). Findings are also contrary to the study by Sankpal SV[7] that the mean pain score of experimental group was 2.47 & control group was 6.17. Findings of the study are also contrary to the study by Selvarani.G GR[1] that the post test mean pain score of pre term infants undergoing painful procedure in the study was 3.2± 2.7 & post test mean pain score of preterm infants in control group was 8.3 ± 4.8. It is concluded that the facilitated tucking is an effective non-pharmacological measure to reduce procedural pain in neonates demonstrated by significantly lower NIPS scores. Similar study can be conducted to compare the effectiveness of facilitated tucking position with other non-pharmacological pain relief measures. There were some limitations of the study i.e. sample size was small and only neonates during hepatitis B vaccination was taken as the sample.

Conclusion

The facilitated tucking position was more effective than the routine position in relieving pain that occurred due to vaccination. Therefore, this position can be used in conjunction with pharmacological methods during painful procedures due to its simple, inexpensive, and non-invasive application. A facilitated tucking position allowed the neonates in this study to better maintain stability in their autonomic & motor system demonstrated by significantly lower NIPS score.

Conflict of Interest: None

Source of Funding: Self

Ethical Clearance: Obtained

Acknowledgement: Researcher thank the CMO of Civil hospital, Panipat, Haryana. We also thank all the parents of neonate for their cooperation & support.

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 DOI Number: 10.37506/ijone.v13i3.16325

Quality of Life of Greek Patients with Type 2 Diabetes and the Role of Rehabilitation

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Abstract

Introduction: Diabetes mellitus is a chronic disorder that is increasing rapidly worldwide. Appropriate management of this chronic disease can improve patient's quality of life, increase life expectancy and relieve society of the huge financial burden.

Purpose: The aim of this study was to measure the quality of life of patients with type 2 diabetes and to investigate the role of rehabilitation.

Methodology: Data were collected with the use of a questionnaire that consisted of three (3) sections: The Short Form 36 Health Survey Questionnaire, (17) questions adapted from the Diabetes Satisfaction Questionnaire (DTSQs) and the Problem Areas In Diabetes (PAID) scale and questions regarding medical data and demographic information. The sample included a total of n = 122 individuals suffering from type 2 diabetes. The research was carried out in outpatient clinics of two general hospitals and private practices within the region of Western Greece. The results of the study were analyzed using the statistical program SPSS v.25.0.

Results: Age and the existence of another health problem besides diabetes have a negative impact on the quality of life of these patients on their physical and emotional health. As patients age, their quality of life decreases affecting all eight scales of the SF-36 Questionnaire. In contrast, patients who had several hours of professional work managed to have a positive outcome on all eight scales. Regarding these patient's rehabilitation, the results showed that the more satisfied the patients were regarding their treatment plan, doctor and nursing staff, their family's support, and their diabetic diet, the grater their functionality on all scales.

Conclusions: The results showed that it is important for patients with type 2 diabetes to have an active professional life and follow an appropriate rehabilitation program, in order to improve their quality of life.

Keywords: *Type 2 Diabetes, Quality of life, Rehabilitation.*

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Introduction

Type 2 Diabetes Mellitus (DM2) affects 85-90% of all people with type 1 Diabetes Mellitus (DM1)[1]. The risk of developing the disease increases with age, obesity and lack of physical activity[2] and occurs more frequently in women with a history of gestational diabetes and people

who have other cardiovascular risk factors[3]. Marshall et al.[4] report that a positive diagnostic result should also be confirmed on another day, unless clinical symptoms of hyperglycemia coexist. Other symptoms apart from hyperglycemia and random plasma glucose values of > 200 mg / dl are also evaluated such as thirst, polyuria and unexplained weight loss[5,6,7].

Epidemiological Data

There is a rapid increase in DM worldwide, triggered by the rapid and global increase in obesity and unhealthy lifestyle in general[8]. The effects of DM on public health are enormous due to the disease complications that lead to premature morbidity[9,10], reduction of life expectancy[11] and in addition a huge financial and social cost[12,13]. The annual incidence in Europe is around 7 cases per 1000 people per year[10]. In terms of gender, men suffer more from diabetes than women[14] while the age group of 40-59 represented the largest percentage of people affected by the condition[15] while living in low-income countries[16]. Finally, most people with DM live in urban areas compared to rural areas[14]. In Greece, in 2012 it was estimated that there were approximately 638,000 diabetic patients, with a prevalence rate of 5.22%[17] while higher rates were reported in men who were unaware of their condition[18].

According to the World Health Statistics in 2019, the mortality rate from DM reached 3.4 million deaths, accounting for 1.9% of the total global mortality and the 7th leading cause of death. The World Health Organization (WHO) predictions for 2030 is that the global mortality rates due to DM will double and at the same time constitute the 5th cause of death [19,20,21,22].

Treatment

Conservative treatment including diet and medication is considered important in the long-term management of the disease [23]. The scientific team should provide accurate information to people with diabetes on proper self-management of medication, diet, exercise, self-assessment and self-care[24].

Quality of life

McCall[25] argues that quality of life is based on the existence and accessibility of necessary factors that ensure happiness in a given society or region. Later, Veenhoven[26] proposed four dimensions of quality of life: livability of environment, life-ability of the person, utility of life, and the appreciation of life. The World Health Organization defines quality of life as the individual's perception related to his life, within the context of the cultural-value system he lives in, in relation to his goals, expectations, standards and concerns[27].

Health-related quality of life is a multidimensional concept that includes the individual concepts of physical health, social life, mental health, pain, and general perceptions of health[28], and is measured by specific questionnaires used to assess the quality of life of people suffering from a disease[29]. The progressive prevalence of a holistic approach to health and the view that the patient should be the center of care (patient-centered care) has also contributed to the study of quality of life. The better the patient's quality of life, the easier it is to adapt to his treatment[30].

Health-related quality of life can be explored in two dimensions, the objective perception of the nursing staff and the subjective perception of the patients[31]. Although the nursing staffs' perception may be objective and record accurate data, they may not be fully aware of the physical and emotional changes that patients may experience[32]. On the other hand, patients themselves may not have the appropriate knowledge to accurately record the symptoms they may experience and their level of functionality with complete objectivity[32].

Current studies have shown that the quality of life and mental health of a person suffering from a chronic illness is related to the views and beliefs that the person develops about health, illness and its treatment (health beliefs)[33]. Each patient, when confronted with an illness, creates personal interpretations and representations about that illness so as to feel capable of dealing with the problems that will arise during the treatment[34].

Quality of life Scales

Although researchers have a wealth of reliable tools to their disposal, they are confronted by the following dilemmas: use quantitative or qualitative tools? generic or disease specific tools? Despite their differences, the tools that measure quality of life evaluate the individual's perceptions of a lived experience as well as their tolerance of this new experience[35].

Rehabilitation

The aging population suggests an increase in the level of disability, which is known to reflect an increased burden of health and social care cost[36]. According to Hansen et al.[37] rehabilitation is the time during which all necessary measures including professional, educational, medical of other interventions are used either public or private in order for the individual to regain their independence after an illness, loss or injury. The main goal of rehabilitation is to enable people to live the way they want, despite the limitations imposed on their activities by the deficits of an illness or injury. In order for a rehabilitation program to work effectively, the needs and abilities of the individual, the prognosis of the condition [38,39], the nature of the deficits, as well as the individual's ability to participate and acquire new skills and knowledge must be taken into account[40,41].

The importance of rehabilitation has been explored extensively in the literature. Without rehabilitation, the likelihood of complications and loss of functionality increases, leading to a delayed hospital discharge [42]. In addition, in many cases there may be problems such as immobility, pain, swallowing and feeding problems, bladder and bowel problems, communication problems, complications of underlying conditions[43]. Rehabilitation should be continued even after the patient is discharged from hospital, in order to prevent, social isolation, secondary health problems, unnecessary patients' admission to nursing homes and urgent hospital re-admission[44].

Rehabilitation Team for Chronic Diseases

Rehabilitation is an interdisciplinary activity that depends on good communication between the professional members involved. In order for the team to succeed a) it must have clear, objective rehabilitation goals for the patient, b) members must work as part of an interdisciplinary team respecting the roles and values of each other and c) be patient-oriented[45]. In Greece, diabetes is monitored during the rehabilitation by pathologists and endocrinologists[46], while the role of the nursing staff, although multidimensional, is not very developed [47,48]. There are few studies in Greece that investigate the quality of life to people with BM and both studies had participants from the hospital environment. There are no studies to measure quality of life in the rehabilitation phase.

Material & Method

Purpose

The aim of this study was to measure the quality of life of Greek patients with type 2 diabetes and to investigate the role of rehabilitation.

Data collection

Data were collected with the use of a questionnaire that consisted of three sections. Specifically, the first section consisted of the Short Form (36) Health Survey Questionnaire, a valid and reliable questionnaire which has been translated into Greek[49]. The second section of the questionnaire included seventeen (17) questions adapted from the Diabetes Satisfaction Questionnaire (DTSQs) and the Problem Areas In Diabetes (PAID) scale as to assess the role of rehabilitation, regarding these patients. Finally, the third section of the questionnaire included questions regarding medical data and demographic information.

Sample

Convenience sampling was used. The sample inclusion criteria were: adult patients, diagnosed with DM2, permanent residence of Western Greece, with a good perceptual level, who were in the rehabilitation phase of their condition and had regular follow up appointments with their doctor[50]. The sample included

127 patients suffering from DM2 in the region of Western Greece. However, 122 patients submitted the completed questionnaires to the researchers yielding a response rate of up to 96%. Participants were informed of the purpose of the study and recruited once they completed a written consent form during their regular follow up appointments in outpatient clinics and private practices. The distribution of the questionnaires was conducted by the researchers during the fall of 2019.

Procedure

The approval research protocol was submitted to both public hospitals and private clinics requesting permission. After permission was granted, the research team approached patients in the outpatient clinics. They stressed the importance of anonymity and confidentiality of participants' data and explained to patients the right to withdraw their participation at any time during the procedure. Patients were given the questionnaires to take home to complete and returned them on their next scheduled doctor's appointment.

Data Analysis

The Statistical Package for Social Sciences v.25.0 was used for data analysis.

Findings

The majority of the participants were men (59.8%), with an average age of 60.7 years, high school graduates (61.5%), married (64.8%) and lived in a rural area of Western Greece (41.8%). Also, 36.1% of the sample worked 2 to 3 hours a day while 33.6% of the sample worked 6 to 8 hours a day. Finally, 38.5% of the sample declared a total annual family income of less than 10,000 euros while 34.4% declared 10,001-20,000 euros.

Table 1: Important factors for a good quality of life.

Factors	Frequency (N)	Percentage (%)
Safety	34	27,9
Professional recognition/acceptance	31	25,4
Social recognition/acceptance	28	23,0
Clean environment	18	14,8
Family peace	44	36,1
Spiritual development	15	12,3
Health	100	82,0
Emotional well-being	46	37,7
Steady monthly income	42	34,4

The participants declared that health, emotional well-being, family peace and a steady monthly income are the most important parameters for a good quality of life.

Cronbach's alpha internal consistency coefficient regarding all items of the SF-36 scales were 0.841 and 0.954 respectively, satisfying the criterion of 0.70[51] .

Table 2: Analysis of descriptive statistics of the SF - 36 scale.

SF -36 Scales	Minimum value	Maximum value	Mean value	Standard deviation (SD)
Physical functioning	10	100	66,76	30,86
Physical functioning role	0	100	45,90	40,83
Emotional functioning role	0	100	50,27	43,97
Social functioning	0	100	54,47	30,63
General Health	0	100	48,65	30,78
Vitality	0	100	54,34	26,56
Emotional well-being	8	100	62,26	24,18
Pain	0	100	51,23	29,17

Participants reported relatively moderate values on all SF-36 scales. The highest average score was recorded on the '*physical functioning'* scale with an average value of 66.76 (SD 30.86) and the lowest score was recorded on the *'physical functioning role'* scale with an average value of 45.90 (SD 40.83).

Regression Analysis (eight scales of the SF-36 tool and the demographic-occupational-medical characteristics)

It was found that for all scales, age (negative effect), working hours per day (positive effect) and the existence of a health problem other than diabetes were the variables that affected patients quality of life with DM2 ($p < 0.05$). It is worth mentioning that patient's *'social functioning'* scale and the location of permanent residency was statistically significant ($p < 0.05$). Additionally, patient's *'general health'* scale and following a diabetic diet was also statistically significant ($p < 0.05$).

Table 3: Descriptive analysis of the questions related to the role of rehabilitation

Variables	Mean value	Standard Deviation (SD)
How satisfied are you with your current treatment?	3,86	,884
How flexible have you been finding your treatment to be recently?	3,28	1,344
How satisfied are you with your doctor?	3,99	1,016
How satisfied are you with the nursing staff during your rehabilitation period?	4,06	1,015
How satisfied are you with your family's understanding of diabetes?	4,14	,865
How clear do you think the plan for treating your diabetes is?	4,08	,887
Do you feel that your diabetes plan is discouraging to you/for you?	2,54	1,254
Do you feel scared when you think about living with diabetes?	3,61	1,131
Do you feel uncomfortable in social situations related to your diabetes care (e.g. people telling you what to eat)?	2,03	1,142

Cont... **Table 3: Descriptive analysis of the questions related to the role of rehabilitation**

Do you feel deprived regarding food and meals?	3,11	1,293
Do you feel satisfied with your diabetic diet?	3,68	1,093
Do you feel 'burned out' by the constant effort needed to manage diabetes?	2,98	1,266
Do you worry about episodes of low blood sugar?	3,24	1,330
Do you worry about the future and the possibility of serious diabetes complications?	3,84	1,128
Do you feel that your family is not supportive of your diabetes management efforts?	1,80	1,098
Do you feel that your friends are not supportive of your diabetes management efforts?	2,19	1,268
Do you feel anxious when you don't stick to the program regarding the treatment of your diabetes?	3,13	1,259

The participants answered that they are quite satisfied with their doctor and treatment while they claim that the nursing staff helped them during their rehabilitation period. They also mentioned that they are satisfied with their family's support, consider their treatment plan quite clear and to a great extent express fear with the thought of living with diabetes. Finally, participants mentioned they were concerned about their future and worried about the possibility of serious complications due to diabetes, while they claim that family and friends are supportive of their efforts to manage their condition.

Correlation factors

The researchers investigated the role of rehabilitation during the treatment of DM2 and the health-related quality of life of patients (eight scales of the SF-36). In all SF-36 scales it was observed that the more satisfied the patients were regarding their treatment plan, doctor and nursing staff, their family's support, and their diabetic diet, the grater their *'physical functioning'* and the higher the score for the '*physical functioning role'*, '*emotional functioning role'*, *'social functioning'*, *'general health'*, *'vitality*, *'emotional well-being'* and *'pain'* scales ($p < 0.05$). Also, the more patients diagnosed with DM2 felt fear for the future, lack of support, anxiety, feelings of deprivation, the lower the scale regarding their *'physical functioning'* and the lower their scores were regarding their '*physical functioning role'*, '*emotional functioning role', 'social functioning'*, *'general health'*, *'vitality'*, *'emotional well-being'* and *'pain'* scales ($p < 0.05$).

Discussion

Although the review of the literature showed that while research has been conducted in many countries on the subject, in Greece it is limited. Therefore, it was deemed necessary to conduct research in Western Greece as no similar research was found in the literature which assess how patients with DM2 perceive the quality of life related to the role of rehabilitation.

The study found three variables that have a statistically significant effect on the health of patients with DM2, such as age (negative effect), hours of occupation per day (positive effect) and the existence of a health problem other than diabetes. Other studies have found similar results[47,48]. The survey showed that 33.6% of the sample answered that they work 6 to 8 hours a day. Patients who had an active professional life demonstrated better scores related to their quality of life and rehabilitation. Similar results are reported by other researchers [2,52].

Regarding the *'physical functioning'* scale of patients with DM2, this study concluded that age, hours of work per day and marital status were statistically significant variables. Specifically, it appears that age has a negative effect on the '*physical functioning'* scale of these patients, thus for each year that their age increases, their '*physical functioning'* score decreases.

Studies with similar results have been recorded [47, 48] as these patients age there is a significant reduction in their physical abilities. Also, physical exercise seems to have a positive effect on the participants health and rehabilitation which is also mentioned in the literature[53]. Finally, a statistically significant difference was found regarding the participants marital status and the '*physical functioning'* scale, resulting in a negative effect[54].

It is worth mentioning that age had a negative effect on the *'emotional functioning role'* of patients. Patients with diabetes over time experience significant emotional decline[55]. However, participants daily working hours appeared to have a positive effect on the *'emotional functioning role'* scale. According to the literature, patients who work or exercise daily are in a better mood than other patients with DM2[56]. Regarding '*social functioning'* there is evidence that as the participants age increases their '*social functioning'* score decreases, while participants daily working hours appeared to have a positive effect on this scale. Finally, those living in urban areas appear to demonstrate a higher score on the same scale. It appears that living in urban areas gives patients plenty of options related to their social life. It is noteworthy that significant statistical findings were made in relation to participants *'emotional well-being'*. Specifically, the rate of daily working hours has a positive effect on patients' *'emotional well-being'*.

Finally, the majority of patients participating in the study stated that the nursing staff helped them during their recovery period, thus recognizing their significant role in contributing to these patient's rehabilitation. Patients also stated that the more satisfied they were with their treatment plan, their doctor, the nursing staff, their family's support of their condition, and their diabetic diet, the higher the score regarding their '*emotional functioning role'*.

Study Limitations

A limitation of this research study is the small sample size included. Although the findings provided important data on the quality of life and views on rehabilitation of patients with DM2, it may be necessary in the future to use a larger sample.

Conclusions

DM is a modern deceptive enemy since a poor diet and lack of physical activity are a few of the main causes of the condition. The results of this study demonstrate that patients with DM2 who have an active working life, fell supported by their family, are satisfied with their doctor and the nursing staff and follow a proper diabetic diet appear to have a better quality of life and rehabilitation than patients that are in an older age group or have another health problem other than diabetes.

It is important for patients with DM2 in the future to have an active professional life, as well as to follow an appropriate rehabilitation program in an effort to eliminating the chances of additional health problems arising other than diabetes in order to improve their quality of life the older, they become. This can be achieved by adopting a healthier lifestyle, which includes exercise, a Mediterranean diet, maintaining normal body weight and regular blood tests.

Conflict of Interest: Nil.

Source of Funding: Self-funding.

Ethical Clearance: Taken from the Ethics committee of Nursing Department, University of Patras (approval number 2/18-09-2019).

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 DOI Number: 10.37506/ijone.v13i3.16327

Influential Factors on the Stress Level Among Students of Bachelor's Degree in Nursing

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Abstract

Background: Stress is very common among students belonging to the healthcare domain. They are more exposed to stressful factors than the rest of the student community. It is of extreme importance to evaluate the level of stress among the students of the bachelor's degree in Nursing, as well as to know the factors involved**. Method**: Study quantitative, descriptive scope, and cross-sectional. The academic stress level was measured on 332 students from different semesters of the bachelor's degree in Nursing, through of the short version of the "About Stress in University Students questionnaire". **Conclusion**: 218 of nursing students experienced stress levels. The average value of stress was 34.59 ± 15.49. The main influential factors on the stress level were somatization and anxiety, followed by induced stress by third parties and workload. There were statistically significant differences in somatization and anxiety between women and men ($p<0.05$). A statistically significant influence of induced stress by third parties and life events with the academic average ($p<0.05$) was found. It is necessary to consider new didactic strategies to decrease the induced stress by workload, as well as somatization and anxiety.

***Key World**: nursing, Stress, stressful factors, students.*

Introduction

Stress is defined as the set of neuroendocrine, immunological, emotional, behavioral processes and responses to situations that demands a major adaptation than usual for the organism, and they are perceived by the individual as a threat or danger, whether for his/her biological or psychological integrity[1]. Academic stress is a systemic, adaptive, essentially psychological process that happens when a student is going through a series of demands that are stressors; when these stressors cause a stressful situation showed by a series of symptoms, it presses the student to take actions or confront and recover systemic balance [2]. Stress impacts negatively and positively depending on how effectively the individual experiencing the phenomenon can cope[3].

Bachelor's degree students usually start their studies with uncertainty and with a certain dose of stress. This situation is, up to a certain point, explainable, as it is a new experience. However, that is not where the problem ends. As the student moves forward with his/her studies, the student faces several demands considered by him/herself (to one extent or another) as stressors. When these demands lead to a permanent stressful situation, it is possible that the student might feel emotionally tired, affecting his/her health [3,4].

Higher education studies are the turning point of academic stress because of their high workloads and because they coincide with a stage of the student's

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life, in which the student must face many life changes[5]. Specifically, getting into college coincides with being separated from the family, their integration to the labor market, and their adaptation to an unusual environment[6].

It is considered that the levels of stress directly influence the academic performance of the student. They also have negative effects on the student's health and psychological well-being.

The stress also inhibits the immunological system, making the students more prone to sickness[7].

Stress has always been alive in the perception of all students who have been under situations like exams, economic difficulties, the need to work, pressures on behalf of the family regarding failure or success. Besides all this, nursing students have added stress caused by the amount of potentially stressful situations in the sanitary sector, in their clinical practice like being in touch with the disease, pain, suffering, disability, and death, among others. So, studies have proved that the stress perceived by nursing students is higher than the stress perceived by students of other bachelor's degrees[8]. The main sources of stress in nursing students are the ones related to ignorance, impotence, and uncertainty in a clinical situation[9]; the increase of workload; the lack of time in relation with the clinical and academic areas, without forgetting other areas like the social and interpersonal areas[10, 11]. A study was conducted which compared the contrast levels and sources of stress amongst international simple nursing students from five countries and the results were evaluated. The findings indicate that nursing students' worldwide share much in common while still retaining individual cultural features[12].

The present study has aim evaluate the influential factors on the stress level among students of bachelor's degree in nursing.

Materials and Methods

This is a quantitative, cross-sectional study with a descriptive approach. The level of academic stress was measured during a specific time among students of the bachelor's degree in Nursing, identifying the relationship between stress and the different variables associated such as: academic performance, semester completion, age, genre, residence, and work situation, i.e., if the students work or not and how many days in a week they do so. To measure the academic performance, it was considered the general academic average of each student. The work situation was obtained by asking a direct question to each student.

The work has been done with 332 students from different semesters of the bachelor's degree in Nursing.

The study used the short version questionnaire titled "About Stress in University Students questionnaire" formed of 35 questions that were divided into 6 dimensions: somatization and anxiety, induced stress by third parties, induced stress by workload, lack of motivation, collateral effects, and life events[13] with an internal consistency of 0.93. The instrument was administered collectively into the classroom, where students take classes.

The research protocol followed the Helsinky Statement guidelines about biomedical research for humans at the international level and General Law of Health at the national level. Local ethics committee approved the study, and written informed consent was provided by all participants.

The data obtained through the instrument were put in a database using the SPSS statistical program version 22 for Windows. Frequencies, percentages, and means were obtained to analyze the socio-demographic data of students. The relationship between the stress level and the different socio-demographic factors were analyzed through t-student. On the other hand, Pearson´s correlation was performed to analyze the relationship among the 6 dimensions of the instrument, the stress level, and the academic average. Finally, linear regression was performed to analyze the contribution of induced stress by third parties and life event on the academic average of the students of the bachelor's degree in nursing. For every test, the level of significance was <0.05.

Results and Discussion

The average number of students per semester was of 41.5 ± 15.45. The third semester had the least number of students (5.7%), and the fourth semester was the semester with the most (18.7%).

More women (84.6%) than men (15.4%) participated in the study. A significant difference in the presence of stress was obtained in women due to somatization and anxiety when compared with the stress reported in men by the same stressor. That is, women tend to be more anxious than men. (Table 1).

Commonly, it has been considered that genre is a predisposing factor in experiencing some level of stress. Women students are more prone to stress than men[14]. However, in this study, there is no significant difference between women and men. Still, it is important to consider that the female population was 5.5 times higher than the male population. Studies performed on students of the bachelor's degree in health science, as psychology or nurse; show that it is common among the male population to be way lower in contrast to the female population[15, 16].

Regarding Marital Status, students who are single (94%) and those who do not have children (93.4%) predominate. However, the students having children have showed a significantly increased level of stress in the nursing students due to the stressor life events (Table 1).

On the other hand, there are significant differences in the level of stress presented by students who work (31.33%) compared to those who do not work (68.67%) where the stressor responsible is the life event (Table 1). Finally, the residence of the students does not seem to have significant differences in the level of stress presented in students who live nearby compared to students who live far away.

Regarding the socio-demographic data reported in this study: the semester completed, the workdays, the academic performance, the number of children, and the marital status have not been related to the presence of stress among the bachelors' students belonging to Nursing. Studies reveal that sex, marital status, and social work have no significant statistical relation within bachelor's degrees in nursing and nutrition[17].

The mean of stress presented in nursing students was 34.59 ± 15.49, which indicates a low stress level. The factor contributing the most to the level of stress is somatization and anxiety, followed by stress induced by third parties and stress induced by workload (Table 2). The results of other studies have described that the main factors of academic stress in students are: exams, homework overload, and academic assignments, as well as the limited time they have to do the work[18, 19].

On the other hand, the academic average obtained by nursing students was 8.6 ± 0.37, which represents a good academic average. The lowest grade was 7.4, and the higher grade was 9.6. In the present study, academic performance seems not to be significantly affected by the level of global stress. However, the stress factor induced by third parties and life events were found to have a low but statistically significant correlation in their scores obtained (Table 2). A model was performed using linear regression to predict to what extent the stress factor induced by third parties can affect the grades that nursing students will obtain (Table 3). The induced stress by the third parties' model is y=8.683-0.017x, and the event of life´s model is y=8.664-0.020x.

Although the stress level has been considered an important factor for low academic performance, in this research, It has not been found that stress significantly affects students' academic performance. Similarly, some other authors do not report a relationship between these variables[20].

It is of great interest to study the students' stress level in the health area as they are more exposed to stressful factors than the rest of the student community. Different studies have been carried out with nursing students where it was reported that stress levels vary from moderate to high level, where besides homework and workload, other stressful factors are associated with clinical practice, including taking care of patients

and negative relations with the staff [21,22]. The stress level detected in this study was low probably because the students were not in a period of clinical practice or exams. It has been shown that the stress level increases under these circumstances, even though no differences were found in stress experienced between academic and clinical elements of the nursing course by students from four countries[12]. However, it is recommended to include groups of students who perform clinical practices for future research to make the comparison.

The stress level in students has been positively associated with depression and anxiety. Therefore, it is important to consider strategies that help students face stressful situations to control and decrease their stress levels[23, 24]. So, identifying students with high stress levels and determining the factor responsible is extremely important to decrease academic stress levels and contribute to the student's good health.

From the 332 nursing students who participated in this study, 218 experienced some stress level. A study conducted with nursing students in Saudi Arabia showed that "assignments and workload" as well as "teachers and nursing staff" were the highest sources of stress in clinical training[11].

It has been recommended to implement support strategies such as stress management counseling, counseling programs, establishing peer and family support systems, and formulating hospital policies for strengthening nursing student´s positive coping skills[25]. However, these strategies are not carried out in countries where human and infrastructure resources in the health-sectional area are limited, so it is important to know the data and the factors of the problems to decrease the level of stress with the corresponding strategies.

Table 1. Data socio-demographic and influential factor on the stress of students of bachelor´s degree in Nursing

		stress	SA	ISTP	ISW	LM	CE	LE
	%	Means (SD)						
Gender								
Female	84.6	35.14 (15.21)	10.27 (5.31)*	4.90 (4.18)	11.60 (4.21)	2.38 (1.95)	2.86 (1.79)	3.14 (2.22)
Male	15.4	31.61 (16.78)	7.92 (5.99)*	4.33 (3.94)	11.00 (4.84)	2.06 (1.97)	3.04 (2.29)	3.25 (2.22)
Marital Status								
Single	94.6	34.5 (15.40)	9.89 (5.48)	4.82 (4.13)	11.48 (4.32)	2.31 (1.96)	2.89 (1.87)	3.10 (2.2)
Married	5.4	36.28 (17.37)	10.22 (5.53)	4.61 (4.54)	11.89 (4.3)	2.72 (1.74)	2.78 (2.02)	4.06 (2.41)

Cont... **Table 1. Data socio-demographic and influential factor on the stress of students of bachelor´s degree in**

Childrens								
Yes	6.6	34.64 (17)	9.36 (5.47)	4.36 (3.91)	11.23 (4.09)	2.45 (2.52)	3.00 (1.90)	4.23 (2.31)**
No	93.4	34.59 (14.40)	9.95 (5.49)	4.85 (4.17)	11.53 (4.33)	2.32 (1.91)	2.88 (1.88)	3.08 (2.20)**
Job								
Yes	31.33	35.57 (14.32)	9.99 (5.16)	4.78 (2.26)	11.66 (3.84)	2.18 (1.85)	3.03 (1.83)	3.92 (2.05)**
No	68.67	34.15 (16.01)	9.87 (5.62)	4.83 (4.10)	11.43 (4.51)	2.39 (1.99)	2.82 (1.9)	2.8 (2.21)**
Home								
Near	37.65	34.23 (15.43)	9.74 (5.41)	4.79 (4.23)	11.41 (4.35)	2.35 (1.94)	2.82 (1.83)	3.12 (2.18)
Far	62.35	35.19 (15.63)	10.18 (5.61)	4.86 (4.04)	11.66 (4.24)	2.29 (1.98)	2.99 (1.95)	3.22 (2.30)

SA= somatization and anxiety, ISTP= Induced stress by third parties, ISW= Induced stress by workload, LM= Lack of motivation, CE= Collateral effects, LE= Life events.

*p<0.05, **p<0.01

Table 2. Correlation between stress level, academic average obtained and the different stressors.

	stress	**SA**	**ISTP**	**ISW**	**LM**	**CE**	**LE**
Academic average	-0.063	0.005	-0.184*	0.016	-0.005	-0.026	-0.115*
stress	1	0.892**	0.811**	0.802**	0.660**	0.646**	0.578**

SA= somatization and anxiety, ISTP= Induced stress by third parties, ISW= Induced stress by workload, LM= Lack of motivation, CE= Collateral effects, LE= Life events.

*p<0.05, **p<0.01

Table 3. Linear Regression Analysis Values Between Third-Party Induced Stress, life events, and Student academic Average

	Correlation	**P value of correlation**	**R2**	**Non-standardized regression coefficient**	**constant**	**P value of regression coefficient**
ISTP	0.184	0.000	0.034	-0.017	8.683	0.001
LE	0.115	0.038	0.013	-0.020	8.664	0.038

ISTP= Induced stress by third parties. LE= Life events

Conclusion

Due to their professional characteristics, the students in the health area are more prone to stress during their bachelor's degree studies. The workload must be more severe since its jobs involves the approach with human beings. Therefore, they have a longer study day than the rest of the areas. In the present study, the workload was one of the most stressful factors in students of bachelor´s degree nursing. The longer workday brings somatization and anxiety, which was the second most prevalent factor for the presence of stress in this research. It is necessary to consider new didactic strategies that allow for shorter days and moments of relaxation in nursing students to have good physical and mental health.

Ethical Clearance: This research has obtained the approval of Superior School of Tlahuelilpan Ethics Committee of Autonomous University from Hidalgo.

Source of Funding: Self

Conflicts of Interest: The authors declare no conflict of interest

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Improving Coordination During Care Transition between Ambulatory and Inpatient Care Facilities: Evaluating the Utilization and Scope of Ehr Facilitated Longitudinal Plan of Care

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Abstract

Gaps in generation and timely transfer of relevant information during care transitions remain a great challenge to care coordination. Electronic Health Record (EHR) based information transfer tools are not efficiently used by most providers. The objective of this project was to understand the current process of care transition between ambulatory and inpatient care setting and to explore the utilization and scope of an EHR based Longitudinal Plan of Care in improving coordination during care transition. The Longitudinal Plan of Care when compared with transition of care practices recommended by Transitions of Care Consensus Conference and National Transitions of Care Coalition work group showed that it lacked some information pertinent to care coordination. The survey performed indicated that most commonly used Electronic Health Record tool for care transition were notes and chart reviews (97.4%, 93.4%). Only 12% of the participants expressed high satisfaction with the currently used tool. Among the participants who used the Longitudinal Plan of Care, only 8.8% reported it as a sufficient tool for information transfer. Majority (93.5%) were unaware that such a tool existed and had never explored its functionality. Improving the functionality of Longitudinal Plan of Care and training health care providers can greatly facilitate information transfer during care transition.

Key words: *Care transition; Electronic Health Record; Longitudinal Plan of Care; Care coordination; Inpatient care setting; Ambulatory care setting.*

Introduction

Health care has experienced an evolutionary change, seeing a shift from simple physician office visits and lengthy hospital stays to short hospital stays and office visits to different specialty providers with a highway of choices around them [1]. Transitions between care settings are periods of vulnerability for patients, especially for the chronically ill. Poor care transitions can compromise patient safety, resulting in costly hospital admissions. Using evidence-based information transfer tools at every level of transition can optimize the quality and safety of patient care [2]. This study evaluates the utilization of an electronic health record (EHR) based Longitudinal Plan of Care (LPOC) in improving care coordination between ambulatory and inpatient care setting in a

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tertiary care facility and suggests systems solutions to fill the identified gaps in information transfer during transition of care.

Background and Significance

Care transitions is the movement of patients between care settings or between care providers within the same setting. The process can put patients and their families at a risk for complications if attention is not given to efficient transfer of information and coordination between providers [3]. The American Geriatrics Society defines care transitions 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 [3].

The increasing rates of potentially avoidable hospitalizations and health-care spending in the country has pointed towards addressing gaps in transitions of care [4]. As patient care is transitioned between inpatient and ambulatory care setting, the amount and complexity of information to be conveyed is often overwhelming. Increasing workload of providers and inefficient systems could lead to gaps in communication. More than half of all preventable adverse events that occur soon after discharge can be traced back to poor transfer of information resulting in poor care coordination [5].

While widespread use of EHRs has greatly improved the quality and accuracy of available information required for safe transition, there is significant gap in timely transfer of this information as patients move between facilities, affecting care coordination. This is primarily due to unavailability of a comprehensive care transition tool enabled by the EHR that is interoperable and uniformly used across settings [6].

There are many studies that have tested the usefulness of a variety of tools or interventions to improve care transition and coordination (see appendix1). Incorporating interoperable EHR- based tools and promoting inclusion of social determinants of health data has facilitated exchange of health information between the hospital and primary care settings and has improved long term outcomes [7].However, a review of successful hospital readmission reduction strategies show the benefit of collaboration with primary care providers augmented with utilization of effective information exchange capabilities of EHR in improving care transition outcomes such as hospital readmissions [8].

LPOC is an existing functionality in the Epic EHR (Epic Systems Inc., Verona, WI) used currently in the organization. It contains populated information relevant to care transition including patient demographics, current medications, problem list, referrals, contact information about care providers and advance care directives. LPOC tool is highly underutilized for information transfer when care transitions occur between ambulatory and inpatient setting. Use of LPOC by providers during care transitions may be a viable option in improving care coordination during transitions and the scope of its utilization within the system isn't completely known. As healthcare systems and providers strive to enhance coordination of care through meaningful use of electronic health records, one could evaluate the scope of LPOC in improving coordination during transition of care across settings [9]

Objectives

The objective of this study is to understand the current process of care transition between ambulatory and inpatient care setting, to determine the current state of use of LPOC's during care transition, to evaluate the components of LPOC's, identify information gaps and to explore the scope of longitudinal plan of care to improve care coordination between ambulatory and inpatient care setting at an academic health system. The findings of this study would pave the path towards suggesting solutions that maximize the functionality and utilization of LPOC's and for suggesting training programs and institutional policies that support safe transitions.

Methods

LPOC Review

The components of LPOC was compared against

the transition of care recommendations by Transitions of Care Consensus Conference (TOCCC), 2008) [10] and framework for measuring transitions of care, as proposed by the National Transitions of Care Coalition (NTOCC) Work Group,2008 [11] to understand the capability of EHR to document the required information for safe care transition and populate it in LPOC.

Survey

The survey questionnaire was distributed to 100 members of the health care team involved in care transition, both in ambulatory and inpatient settings including physicians, care managers, case managers, nurses, social workers and pharmacists. A self-administered semi-structured questionnaire was used to explore the current care transition process, utilization of LPOC's by health care providers during care transitions and to identify information gaps as perceived by the respondents (See appendix 2). Two open ended questions were included to understand the as-is process of care transition between inpatient and ambulatory care setting. The scope of EHR based LPOC in improving coordination during transitions of care was evaluated.

Study data were collected and managed using REDCap electronic data capture tools hosted at the *. REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies, providing 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources [12].

Results

LPOC Review

The Longitudinal Plan of Care in EHR was compared with the Transition of Care process measures recommended by NTOCC and TOCCC to identify missing components in LPOC for safe and efficient transition.

LPOC has information populated from EHR and hence incomplete or inaccurate entry of information in EHR would mean incomplete data in LPOC. LPOC currently has information on current medications, problem list, referral and follow up, contact information of care team, allergy information, advance directives, general risk score, upcoming health maintenance, recent vitals, recent outpatient visits and outpatient progress notes.

However, we found that many essential information required for safe transition process such as patient demographics, admission and discharge dates, test or procedure results and recommendations after consults are not populated in LPOC, though this information is available in EHR as documented by various care team members. The EHR capability to pull this information into LPOC can be easily created. Certain other relevant information pertaining to treatment of active problem, patients' response to treatment, functional and cognitive status of patients, counseling provided, patient/family education for self-management and informed consent for care transition are currently not adequately documented in EHR in a manner that it can be populated in LPOC. Information as treatment of active problem and response to treatment are written in note form by doctors and getting it meaningfully populated in LPOC could be a challenge.

(based on Transition of care recommendations by TOCCC and framework for measuring transitions of care, as proposed by NTOCC Work Group,2008)

X^1= Information currently populated in LPOC

X^2 = Information available and can be potentially pulled into the LPOC

X^3 = not currently documented in a way that can be pulled into LPOC

Table 1: LPOC Review

Transition of Care- Process measures	Information is documented in EHR	Information is populated in LPOC	Gaps/Potential solution
A. Care team processes (Transition record with following information)			
Patient Demographics2	X	-	Not available currently in LPOC. Can be easily pulled from EHR.
Date of Admission2	X	-	
Date of discharge2	X	-	
Care plan 3	X	-	Not interdisciplinary Incomplete
Main diagnosis and problem list1	X	X	
Treatment of the active problem and response to treatment3	X	-	Documented as notes in EHR by physicians, difficult to populate in LPOC
Names and contact details of responsible health care providers3	X	-	Incomplete information in HER
Medication reconciliation2	X	-	Only current medications available in LPOC
Test/procedure results (laboratory, radiology, and other diagnostic procedures)2	X	-	Can be easily made available in LPOC
Recommendations of any subspecialty consultants3	-	-	Note type – Consult. Has the potential to be a lengthy list – can they be linked and collapsed?
Patients functional/cognitive status at discharge3	-	-	Documentation exists, is not utilized
Tracking of referrals to other providers or settings of care1	X	X	

***Cont.*. Table 1: LPOC Review**

Admission and discharge planning is included3	X	-	Case management DC planning? Flowsheets in Case Manager navigator– discharge disposition field
Follow-up appointment tracking mechanisms are in place1	X	X	Can be improved
End-of-life decision making available2	X	-	Steal stuff from app report that pops up when you click on the header
Emergency plan and contact number of responsible person3	-	-	No plan documented
Treatment and diagnostic plan2	X	-	Possible to be populated in LPOC
Prognosis and goals of care 2	X	-	Not discretely documented in HER
Advance directives, power of attorney, consent1	X	X	
Assessment of caregiver status 3	-	-	Not currently documented in HER
Counseling provided to patient and caregiver 2	X	-	
Code status1	X	X	
B. Information transferred is			
Timely	-	-	Captured in survey
Complete	-	-	
Accurate	-	-	
C. Patient and family education and engagement			
Patient and/or family preparation for transfer3	-	-	Not currently documented in a way that can be pulled into LPOC
Patient and/or family education for self-care management3	-	-	
Patient and/or family agreement with the care transition (informed consent)3	-	-	

***Cont.*. Table 1: LPOC Review**

Structure measures	
Accountable provider is available at all points of care transition serving as central coordinator(s) across all settings	Care managers, case managers and social workers coordinate care
A tool for plan of care is used	Not comprehensive or interdisciplinary
Use of a health information technology-integrated system that would be interoperable and available to both patients and providers.	Available between inpatient and ambulatory setting

Survey Results

Of the 77 respondents who participated in the survey, majority (31,40.3%) were either case managers or care managers followed by social workers (27,35.1%), physicians (10,13%), nurses and others who were mostly pharmacists (7, 9.1%). Of the respondents, 66.7% worked in an inpatient setting. The EHR tool reported as most commonly used for care transition were notes in EHR and chart reviews (97.4%, 93.4%). All respondents reported as using more than one EHR tool for information transfer. Many used tools as flowsheets, results review, navigators, Medication Admission Record (MAR) and referrals to facilitate information transfer during care transition. Few reported as using Information and Care Everywhere media tab, After Visit Summary, interfacility discharge orders and in-basket messaging for transferring information between care settings.

Only 12% of the participants expressed that they are highly satisfied with the EHR tool that they currently use for care transition and 1.4% reported that the information transferred during transitions is always complete. While 10% of them reported that information transferred is accurate, only 2.7% expressed that it is timely. It was indicated that the discharge summary is never available at the time of transfer and some commented that they depended on discharge instructions which is handed over to the patients.

Only 6.5% of them used LPOC and most (93.5%) expressed that they are not aware that LPOC existed in EHR and have never used it nor explored its functionality. Even those who used LPOC used it only sometimes (6.7%) during care transitions. Since most have never used LPOC to facilitate care transition, they did not respond to the question as to what components they would like to see included in LPOC to make it a more efficient tool for information transfer. Among those who responded, only 8.8% of them indicated that LPOC is a sufficient tool for information transfer, most (75.4%)expressed that an interdisciplinary care plan should be included in LPOC. The other information components suggested to be included were treatment for specific problems (63.2%), response to treatment (45.6%), preparation for self -management (47.4%) and more aspects as home support, admission and discharge information, disease specific criteria, disease specific care plan and community resources. The open-ended questions in the survey to outline the as-is process of information transfer sought a variety of responses suggesting that there is no single, comprehensive tool in EHR that could be uniformly used for care transitions. It was gathered from responses that any specific information to care managers, case managers or social workers was mostly communicated by e-mail, phone or as in-basket messages. Most expressed that clinical information extracted from different tools of EHR is often communicated to providers across settings by hard fax or by print. The required information is extracted from various records in EHR, such as home health care orders, chart reviews of notes, care plan, and medication reconciliation. It was also described that information from inpatient team is rarely relayed to the

outpatient team, allowing no follow-up or feedback on patients' status. Discharge summaries were sent across settings when ready, but almost never at the time of transfer**.**

Discussion

Most reviewed studies show the immense role that electronic health record play in facilitating care transitions and coordination though transition planning support enabled by EHR is not comprehensive. The result of the study reflects on underutilization of EHR capabilities to enhance care coordination during transitions. Most of the needed information that is missing in LPOC is available in EHR and if functionality be created in EHR to populate these information components into LPOC, it can be used routinely during care transitions as an effective tool for information transfer between providers. Efforts are taken to train the providers to document the necessary, precise information in EHR related to treatment response, self-management preparation, care plan and counselling so that it could be populated in LPOC. With lack of a comprehensive tool for information transfer, providers involved in care transition collect the required information from EHR which is often incomplete, inaccurate and time consuming. An inter-disciplinary comprehensive care plan is currently not available in EHR and hence this information is not populated in LPOC. Based on the study findings, we have suggested solutions to improve the functionality of EHR to populate all the information required for safe transition in LPOC so that it can serve as the single tool for information transfer during transition of care, at-least between inpatient and ambulatory care setting of the facility where EHR is interoperable. We have also suggested policies that would support the use of LPOC's by all personnel involved in care transitions and are hoping that this initiative will pave way to a more efficient, safe and paperless process of transition between settings, thus improving care coordination and quality of care.

The review findings point to the need for incorporating effective care transition tools in EHR which would ensure timely transfer of accurate and relevant information between providers as patient care in transitioned between facilities. It is equally vital to have interoperable EHR systems with a comprehensive care transition record to facilitate care coordination and safe transitions.

Conclusion

EHRs should be optimally utilized to improve healthcare delivery. A comprehensive, interdisciplinary care transition tool in the EHR may improve the efficiency and effectiveness of care transitions by allowing timely information transfer between providers. The functionality of EHR can be enhanced to include all the required information for safe care transition and populate it in the Longitudinal Plan of Care so that it can transform into an efficient, uniform mode of information transfer between care settings within the facility. Use of an interdisciplinary care plan in EHR would serve as an invaluable source of care transition- relevant information which could be populated in LPOC. Considering the impact of safe transitions and care coordination on quality of health care delivery and health outcomes, it is highly empirical to be proactive in implementing simple, yet effective systems that facilitate safer care transitions.

Clinical Relevance

LPOC is an existing tool in EHR which contains populated information on most components required for safe care transition. Comparing LPOC with recommended practice measures by TOCCC and NTOCC has enabled us to understand the information gaps and work with EHR providers to improve the LPOC functionality. The survey results gave us additional inputs to generate in EHR the missing information required for care transition and to populate this information in LPOC. This initiative would transform LPOC into a single, efficient tool for information transfer between providers in inpatient and ambulatory care settings thus enhancing care coordination and patient safety.

Acknowledgement: This study was undertaken by the departments of Clinical Informatics and Health

Informatics of * as a process improvement project.

We thank our colleagues involved in care transitions at inpatient and ambulatory care settings who provided insight and expertise that greatly assisted the research. We greatly appreciate the technical assistance received from the REDCap team of the institution in designing and managing the survey. The REDCap system use, was supported by CTSA Award # UL1TR002366. Its contents are the authors' sole responsibility and do not necessarily represent official NIH views.

We thank all those who reviewed the manuscript and offered valuable comments and feedback.

Conflict of Interest

Authors of this study have no financial and personal relationships with other people or organizations that may inappropriately influence or bias the objectivity of submitted content and/or its acceptance for publication in this journal. The authors declare that they have no conflicts of interest in the research.

Protection of Human Subjects

This work is considered as a process improvement project and hence was exempted from review by * Institutional Review Board. The study did not involve collecting patient health information. Those health care personnel who participated in the survey were informed of the purpose of the project and had consented to participate in it.

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Published, Printed and Owned : Dr. R.K. Sharma
Printed : Printpack Electrostat G-2, Eros Apartment, 56, Nehru Place, New Delhi-110019
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