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The Relationship between Self-Confidence in Learning and Clinical Educators' Characteristics by Nursing Students

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Abstract

Background: Student nurses need to building up self-confidence in learning in order to cope with the complex clinical situations. Individuals with self-confidence be certain of themselves to have the capability to manage a situation or provide nursing care in accurate, relevant and efficient method. Equipping student nurses to provide patients care in getting more complicated healthcare setting is a challenge face nursing instructor, self-confidence is one of the important determinants of successful learning.

Objectives: The aim of the present study is to identify the relationship between Self-confidence in learning and clinical educators' characteristics by nursing students.

Method: Correlation research design was utilized in the present study. A convenience sample of 179 nursing students was included in the study. The Nursing Clinical Teacher Effectiveness Inventory and Self-Confidence in Learning scale were used to collect the data.

Results: The results of the study showed that the majority of study participants had high level of self confidence in learning. Also, the participants reported that their clinical educators had high level of teaching abilities, nursing competences, and personal traits. Moreover, significant positive relationship was existed between self-confidence in learning and clinical educators' characteristics.

Conclusion: Self-confidence in learning is an essential goal in nursing education. Assessing clinical competence and investigating factors influencing it might be helpful in increasing Self-confidence of nursing students.

Keywords: *Clinical teaching; Learning; Nursing students, Self-confidence.*

Introduction

Student nurses need to building up self-confidence

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in learning in order to cope with the complex clinical situations. Individuals with self-confidence be certain of themselves to have the capability to manage a situation or provide nursing care in accurate, relevant and efficient method. Equipping student nurses to provide patients care in getting more complicated healthcare setting is a challenge face nursing instructor, self-confidence is one of the important determinants of successful learning. Therefore, various methods should be used by nursing instructors to promote student nurse's self-confidence (Ma, 2013).¹

Self-confidence is theoretically known as a confidence in the integrity of governance and conduct. Ravert and McAfoos (2014) stated that self-confidence was essential aspect probably impact the critical thinking development, the ability to solve problems, and the ability to judge among student nurses during practicing in the clinical setting. However, Yeom (2016) noted that student nurses have noticed that they have a high level of anxiety and were lacking self-confidence during their work in clinical setting. Anxious students perhaps avoid to cope with the complex or threatening condition that students perceived they were not able to cope; nonetheless once students have self-confidence to deal with this complex or threatening condition effectively, they may do their tasks.^{2,3}

Clinical learning experience gives chance to student nurses for application of their knowledge and psychomotor skills as well safely, that might be support feeling of self-confident and ultimately eliminating feelings of anxiety and fear. In academic environment individuals with positive self-confidence have good feeling for selves. In addition, they make proper academic selections, spend effort on suitable actions, and keep on in behaviors that enable succeeding academic activities. (Lundberg, 2008).⁴

Teaching facilitate learning and focuses on meet the needs of the learners and assisting them to grow as self-directed learner (Stevens and Brenner, 2010; Anderson and Stillman, 2010). Also, it is focus on the development of the learner as a whole, instead of on particular information or skill. Learning occurs as students accept and utilize new knowledge and skills.^{5,6} It reflects personal change, and the change is promoted by a continuous process from verbatim memorization and rote learning, to understanding and constructing meanings (Yeom, 2016).³

Effective clinical teaching is essential for qualified nursing. Clinical nursing instructor have responsibility to teach novice nurses in the clinical area. Clinical instruction prepares novice nurses for practicing their professional roles. Furthermore, real life clinical practices assist nursing students to improve their competences. Therefore, clinical experiences empower nursing students to become qualified practitioners. Clinical instructor work as advisor for beginner nursing

students in the progress of clinical learning (Gaber, 2011).⁷

Seven criteria of effective clinical instruction are: (1) ability to analyze and knowledge; (2) ability to organize and present clearly; (3) ability to stimulate interest and enthusiasm; (4) ability to interact with groups; (5) abilities to supervise in clinical setting; (6) clinical competences; and (7) professional behaviors. Aspects enables learning in clinical environment such as learning experiences accessibility and availability, resource availability and placement, sufficient staff with qualification who engaged in training of students, suitable and qualified role model for patient care, availability and engagement of clinical instructor in teaching, group work and participation of students in the group, helpful relations among clients, staff and students, were recognized as required for learning. Yet, it was noticed that these aspects insufficient or unreachable to students (Goodwin ,2014; Indra et.al., 2016).^{8,9}

A study a study carried out by Chandekar (2015) to examine aspects that impact learning by students in nursing education. The studied sample were 162 nursing students. His results reveled that the curriculum and practical learning setting with self-efficacy had the broad influence on practical competencies and learning in nursing profession.¹⁰

Moreover, another study done by Niederriter (2017) to determine criteria and instructional methods of good clinical educators. The sample of his study were14 nursing students. His findings revealed that clinical educators played a significant role in preparation of the nursing students to become a qualified nurse in the clinical environment.¹¹

Also, Costa et.al. (2020) conducted a study to assess and compare satisfaction and self-confidence in the learning of student nurses from the usage of simulating and tradition instruction. The results of their study indicated that tradition instruction strategies and simulation increase self-confidence and satisfaction in learning.¹²

Hsu et.al. (2014) carried out a study to develop and test an inventory which measure nursing preceptors' competencies in clinical teaching. Their study sample was

389 clinical nursing preceptors. Their results revealed that the clinical nursing instructor have essential role in nursing students learning and development through helping to produce a supportive learning environment.¹³

Confident students involve in challenging outcomes, committed to utilize their clinical skills and handle difficult tasks with less anxiety. Clinical confidence learning take place at clinical setting through practicing nursing skills and experiencing success. Consequently, clinical instructors are responsible to promote student's confidence through building a confidence rich learning environment. Clinical instructors should able to identify students with low confidence and develop suitable teaching practices that help in promote self-confidence. The clinical nurse educator is an essential component of an effective clinical nursing education. They facilitate students to apply knowledge and skills in the practical environment. The necessity for an additional thorough inquiry of students' perceptions of the features and instructional behaviors that much better help their understanding and learning will assist educators to enhance learning practices in the clinical environment (Niederriter, 2017; Warren et.al., 2016).^{11,14}

Significance of the study

Faculty of Nursing in Minia University have six scientific departments named as medical surgical, community health, obstetric, pediatric, and psychiatric nursing. Also, nursing administration department. Moreover, these departments offer Bachelor in nursing and postgraduate educational program as well. Fourth year nursing students experience almost the required training practices inside (e.g. laboratory teaching) and outside (e.g. hospitals and community settings) the faculty campus. Feedback of students should be utilized effectively as having proper knowledge about what assists students to promote their learning. Self-confidence is central and required in academic settings. Nevertheless, unexpectedly slight concern has been given to the practical implications, quality, and levels of nursing students self-confidence and their own personal learning needs, interests and abilities. This study may provide information that can be used as basis in generating an educational chance to update clinical nurse instructors in the methods to improve teaching behaviors and strategies for increasing self-confidence

on nursing students.

Purpose of the Study: The present study aims to identify the relationship between Self-confidence in learning and clinical educators' characteristics by nursing students.

Research questions:

- What is the perception of self-confidence in learning among nursing students?
- What is the perception of clinical educators' characteristics by nursing students?
- What is the relationship between Self-confidence in learning and clinical educators' characteristics by nursing students?

Method

Research Design: Research design that utilized in this study was correlation design.

Setting: The study was carried out at department of nursing administration, Minia University, Faculty of Nursing, Egypt.

Subjects and sampling: A convenient sample of 179 fourth year nursing students who were enrolled in nursing administration course and available at the time of data collection within first semester in the academic year 2019-2020

Tool of data collection: Self-administer questionnaire was utilized to collect the data. The questionnaire was scored according to a 3-point Likert scale ranges from 0-2 (zero for disagree, 1 for neutral, and 2 for agree). It composed of three parts as follows; *Part I:* Sociodemographic variables such as age, marital status, previous academic performance, and residence place, *Part II:* Inventory of clinical nursing educator effectiveness that prepared by Knox and Mogan (1985).¹⁵ The Inventory composed of 47 important educators' criteria subdivided into five sub-scales. The sub-scales are ability of teaching [19 items], personal characters [7 items], nursing competence [8 items], interpersonal relationships [6 items], and students' evaluation [7 items], and *Part III:* Scale of self-confidence in learning scale prepared by The National League for Nursing.

It consists of eight items to assess nursing students' perceptions of their abilities in providing nursing care (Jeffries, 2005; Ravert and McAfoes, 2014).^{16,2}

Procedures of data collection:

- Inventory of Nursing Clinical Teacher Effectiveness and Self-Confidence in Learning scale were translated into Arabic language and its validity of content was tested by three specialists in the related fields namely medical-surgical nursing, administration, and nursing education.

- The reliability value of the study tool was 0.97 and was measured using Alpha Cronbach test.

- The applicability and clarity of the study tool were examined through a pilot study on a sample of fourteen students (10%). necessary modifications of the study tool were done in the light of pilot results. the pilot study sample were not included in the main sample of the study.

- The study sample completed self-administered questionnaire during their class time (the time needed was 10 to 15 minutes)

- Data were collected from November 10-30, 2019.

Ethical Consideration: The study purpose was explained to all responsible authorities in the study setting (nursing administration department council and vice dean of students' affairs). Then, the official permission to carry out the study was obtained. In addition, disclosure of the study purpose was discussed to all level four nursing students in the study setting. After obtaining their consent, they were free to withdraw at any time without any penalty. The identity, privacy and confidentiality of the participants and their data were also guaranteed anonymously.

Statistical Analysis: Descriptive statistic such as frequency and percentage utilized for the data analysis. Furthermore, inferential statistics as Pearson correlation, mean, and standard deviation were used for analysis of the data. Also, the significance level was measured at P value of ≤ 0.05 .

Results

Table 1: Distribution of the study participants according to their general characteristics. N = 179

General Characteristic	No	%
Age		
19-20	40	22.35
21-22	120	67.1
23-25	19	10.6
Total	179	100%
Gender		
Male	39	21.8
Female	140	78.2
Total	179	100
Marital status		
Married	9	5.03
Single	170	94.97
Total	179	100%
Having children		
Yes	3	1.7
No	176	98.3

Cont... Table 1: Distribution of the study participants according to their general characteristics. N = 179

General Characteristic	No	%
Total	179	100%
Previous academic achievement:		
Excellent	72	40.2
Very good	82	45.8
Good	18	10.06
Bass	7	3.9
Total	179	100%
Residence		
Rural	129	72.07
Urban	50	27.9
Total	179	100%

By extrapolating the results table 1 shows that the majority of the study participants (67.1%) aged 21-22 years old. Moreover, 21.8 % male and 78.2 female. Also, 94.97% of the participants are not married. Moreover, this table shows that 98.3% not have children, 45% achieved very good grades in the previous academic achievement. In addition, this table demonstrates that 72.07% of them lived in rural areas.

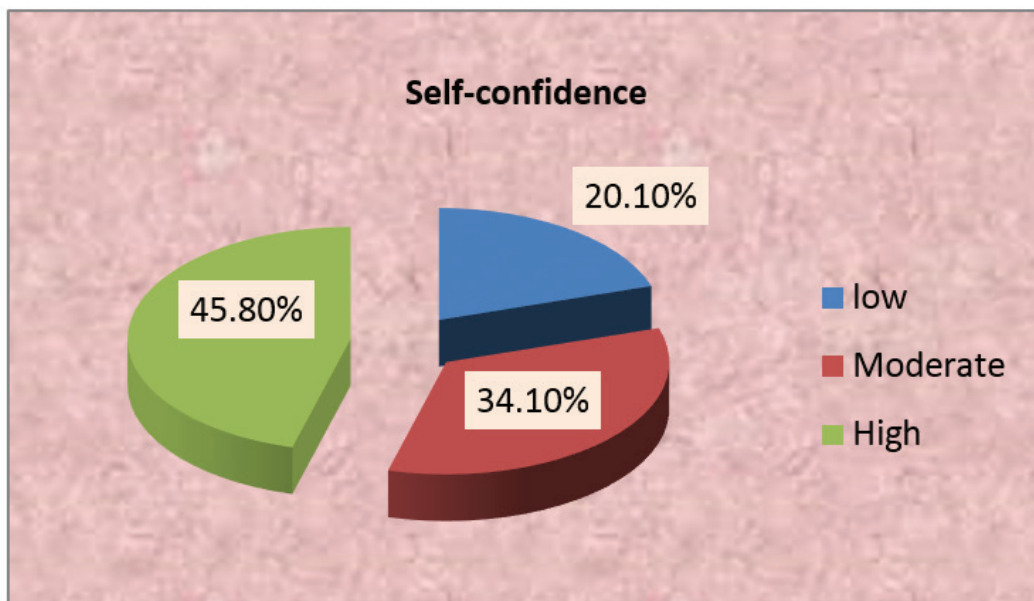


Figure 1: Self – confidence level as perceived by the study participants. N= 179

Figure 1 illustrates self – confidence level as perceived by the study participants. It was noticed that the highest percentage (45.80%) of the participants have high level of self -confidence (Sample item includes “ It is my responsibility as the student to learn what I need to know from this course teaching activity” , “ I know how to get help when I do not understand the

concepts covered in the course”, and “ I am confident that I am developing the skills and obtaining the required knowledge from this course to perform necessary tasks in a clinical setting”. Also, 34% of them have moderate level of self-confidence. On the other hand, 20.10% of the study participants have low level of self-confidence.

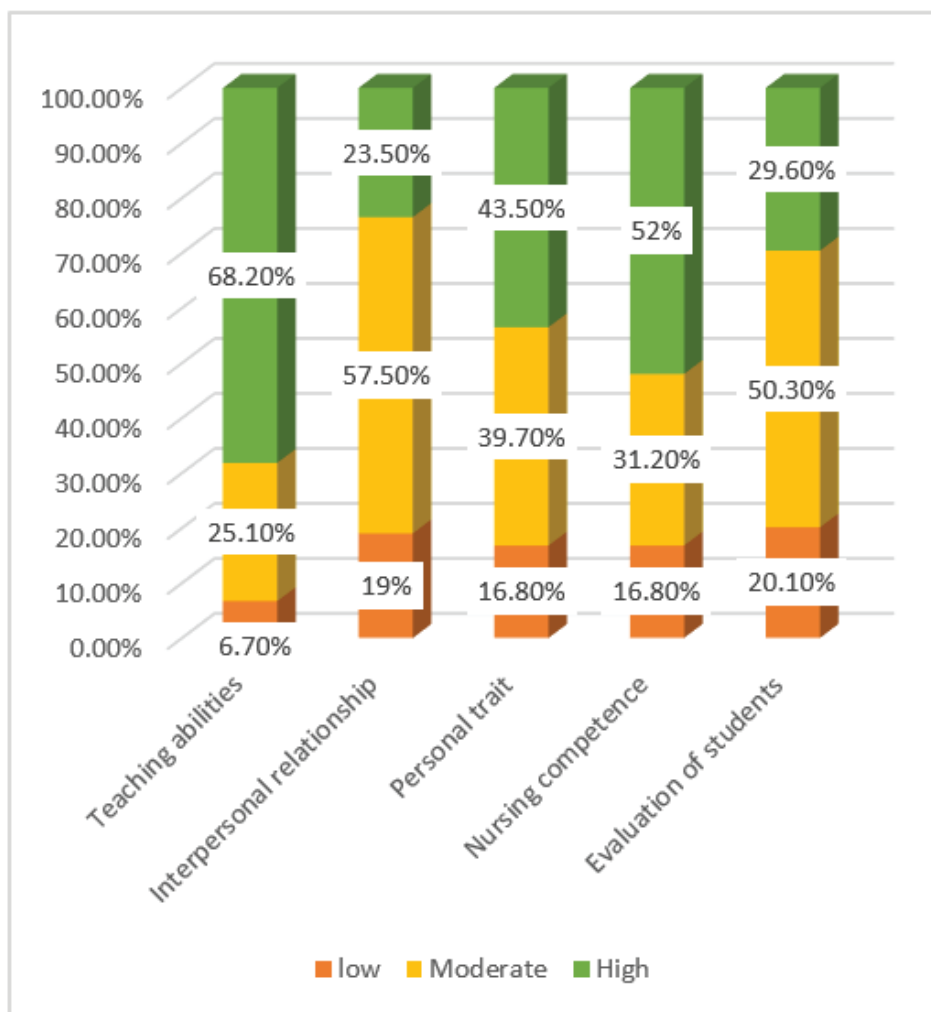


Figure 2: Level distribution of clinical educators' characteristics as perceived by participants. N = 179.

Extrapolating results figure 2 indicates level distribution of clinical educators' characteristics as Perceived by participants. It was observed that the participants perceived their clinical educators' characteristics positively. The highest percent (68.20%) with high level was obtained with teaching abilities characteristics (sample item includes "Encourages active participation in discussion" and "Is well prepared for teaching"). Also, regarding nursing competences characteristics it was clear that 52% of participants perceived it as high level compared to 16.80 % with low level. (sample item includes "discusses current development in his/her field" and "reveals broad reading in area of interest". Moreover, it was observed that 43.50% of the participants reported high level perception

about personal trait characteristics of their clinical educator (sample item includes "self -confidence" and " is a dynamic and energetic person". On the other hand, this table shows that 57.50% of the respondents had moderate level perception toward interpersonal relationship of their clinical educators compared to 19% who had low level perception (sample item includes "encourages a climate of mutual respect " and " listens attentively". Furthermore, the same table revealed that 50.30% of the participants had moderate level perception about evaluation of students by their clinical educators compared to 20.10% who had low level perception (sample item includes" corrects students' mistakes" and " makes specific suggestions".

Table 2: Pearson Correlation (r) of self-confidence in learning and clinical educators' characteristics by the study participants. N=179

Domain	Teaching abilities	Interpersonal relationship	Personal trait	Nursing competence	Evaluation	self-confidence
Teaching abilities		0.821**	0.808**	0.797**	0.696**	0.738**
Interpersonal relationship			0.811**	0.852**	0.657**	0.783**
Personal trait				0.837**	0.716**	0.824**
Nursing competence					0.722**	0.799**
Evaluation						0.740**
self-confidence						

* Significant at $p \leq 0.05$. ** Highly significant $p \leq 0.001$.

$r = 0.00$ to 0.24 weak or no correlation $r = 0.25$ to 0.49 Fair correlation

$r = 0.50$ to 0.74 moderate correlation $r = 0.75$ + strong correlation

By looking at the table 2 we find that, there was high statistically significant and positive relationship ($p = 0.001$) between all characteristics of clinical educators and self-confidence in learning of the study participants. It was found that high statistically significant difference and strong correlation were existed among self-confidence, Interpersonal relationship, Personal trait, and Nursing competence ($r = .783, .824, \text{ and } .799$ respectively). Also, it was observed that high statistically significant difference and moderate correlation were existed among self-confidence, Teaching abilities, and Evaluation ($r = 0.738$ and 0.740). Moreover, it was clear from this table that high statistically significant and positive relationship ($p = 0.001$) between all characteristics of clinical educators were existed.

Discussion

Clinical educator should use creative techniques to achieve the curriculum goals and keeping a secure environment for clients. Clinical educator should also achieve the learning needs of a diversity of students.

The role of the clinical instructor turns from being a mentor to a facilitator and to interactions with students and among students themselves. Though, the truth of educational setting, teachers and students needs a lot of improvement is not pessimistic but this is the reality (Ibrahim, 2020; Aljohani and Karim, 2016).^{17,18}

Results of the present study revealed that the majority of the study participants have high level of self -confidence in learning. This finding agrees with Ma, (2013) who noted that the greater number of the respondents had self-confidence in their capability in the content mastering of the simulation teaching method. Furthermore, it was clear that fourth year nursing students in Minia University passed through their three previous academic years with major nursing courses that provide them with essential knowledge and psychomotor skills that help them to be confidence in clinical assignment.¹

In addition, the participants perceived their clinical educators have high level of teaching abilities. This finding supported with the study of Gaber (2011) who

stated that nurse educators have a responsibility to provide nursing students with clinical instruction that is most effective at facilitating learning.⁷ Also, the clinical nurse educators are responsible to use their teaching and clinical competences to support student nurses apply their knowledge that gained during theoretical classes, laboratory sessions, and simulation activities to the complex clinical conditions. Moreover, Biffu et.al. (2018) reported that teaching ability and clinical competence were the most effective teaching behaviors among nursing students.¹⁹

Also, concerning nursing competences characteristics of clinical educators it was clear that participants perceived it highly. This result in line with Hsu et.al. (2014) and Buchanan et.al., (2013). They explained that nurses should have the ability of assessment, diagnosis, care planning, communication with clients and families, and application of scientific nursing theories to patient care.^{13,20} Competencies of professional practice for patient-centered care comprises the ability to communicate; empowerment in the profession role; awareness of others' profession role; management; group work; and conflict management.

Moreover, personal trait of clinical educators was highly perceived by the participants. This result agrees with the findings of EL-Banan and Elsharkawy (2017). They clarified that it is important to maximize clinical education for nurses' students by competent nursing clinical educators. In addition, A clinical nursing educator is a tool that assist students to integrate knowledge, skills and emotions required to provide patient care as the student transfers from teacher dependence to self-reliance.²¹

Furthermore, regarding interpersonal relationship characteristics of nursing clinical educators, it was noticed that the participants provide positive perception. This finding in accordance with Moses (2017) who stated that knowledge and skill transition, which is at the focus education, based deeply on the interpersonal success of the educator. His/her interaction and communication successfully with patients, staff, and students is an important factor of his/her success. The educator adapts his/her relations to accomplish the various needs of the conditions in which students are learning nursing. He/she struggles to continue her authenticity as individual

and as a professional nurse.²²

Also, the study participants reported positive perception about their clinical educators in relation to evaluation of students. This finding in the line with Yeom (2016) who mentioned that evaluation of performance is also an significant part of the educator's role therefore educators support students to make the associations between theory and practice.³

Additionally, the current study showed that there were statistically significant and positive relationship between all characteristics of clinical educators and self-confidence. This finding supported with Moses (2017) who stated that teaching process composed of a set of activities as explanation, demonstration, guidance and counselling by the instructor in order to bring about permanent change in behaviors of the learner. Also, teachers must possess a sense of competence, self-confidence, and a belief in themselves as teachers, to be optimally effective.²²

The teaching and learning process is related to each other; if no one learns, this means that no one teaches. Consequently, the instructor role is to assist learners to learn by intentional and mindful handling of data, principles, competences, ideals, attitudes and behaviors with the purpose of achieving desirable changes in character. Based on the above, no effective teaching could be said to have taken place if learning has not occurred. Also, Colleges are the gateway of the career. They responsible to make certain nursing students are skilled to practice the profession in the future EL-Banan and Elsharkawy (2017).²¹

There is rising recognition, across numerous diverse contexts, that self -confidence views can have vital effects on enthusiasm and behavior. So, assisting individual to trust in selves is considered often to be the more important, but also the most challenging, aspect of promote successful results in many settings. Health care team members acknowledge the important of positive self- confidence in several rehabilitation and health or fitness-enhancing contexts (Cummings and Connelly 2016).²³

Recommendations

- Provide Training courses for nursing educators

to develop clinical educators' characteristics mentioned in the present study.

- The need for application of clinical educators' characteristics mentioned in the current study in different nursing department and courses and measure its effectiveness to ensure the validity of the findings of this study.

- Provide positive reinforcement for clinical nursing educators who comply with characteristics mentioned in the present study.

- Replicate the study in the future with large sample size to generalize the finding.

- Further researches are recommended to examine the influence of teacher factors on students' learning outcomes for example cognitive, psychomotor, and critical thinking skills.

Limitations: The study has two limitations; first limitation regarding to the study instrument which measure clinical educators' characteristics. Based on that much better in the future study to examine additional related factors as clinical setting, course content, subject matter, teaching style, and learning style. Second limitation concerning convenience and small sample size that threaten generalizability of finding.

Conclusion

Self-confidence in learning is an essential goal in nursing education. Assessing clinical teaching behaviors and investigating factors influencing it might be helpful in increasing Self-confidence of nursing students. The results of current study provide insights that clinical teaching behaviors which identified in the present study namely teaching abilities, interpersonal relationship personal trait, nursing competence, and evaluation of students could have a significant influence on self-confidence in learning and training of qualified nursing students. By looking at the study findings, it was concluded that the majority of studied nursing students had self-confident in their learning. Also, they perceived that their clinical educators have high level of teaching ability, professional competence, and personality characteristics.

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A Study to Evaluate the Effectiveness of Planned Teaching Programme on Knowledge and Practices Regarding the Importance of Play Activities among the Mothers of Under Five Children During attending OPD in the Selected Hospital, Bardoli, Gujarat

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Abstract

Background: Play constitutes an essential parameter of the normal psychosomatic development of children, as well as their statutory right. Play is the most important activity of a child's life. **METHOD:** in this research study a quantitative approach with Pre-experimental one group pre-test post-test design was adopted. 50 mothers of under five children were selected by using non-probability convenient sampling technique. Structured interview schedule and inventory checklist both were used to collect data from the subjects. Planned teaching programme was organized to educate the mothers regarding importance of play activities followed by posttest. data was analysed by using descriptive and inferential statistics such as standard deviation, chi- test, and paired 't' test. **RESULT:** The pre-test knowledge scores showed that majority of respondents 37 (74%) had average knowledge, 13 (26%) had good knowledge and posttest knowledge scores showed that 46(92%) had good knowledge, 4 (8%) had average knowledge. The pretest practice scores showed that majority of respondents 38 (76%) had average practice, 12 (24%) had good practice and posttest practice scores showed that 48 (96%) had good practice, 2 (4%) had average practice. paired t value of knowledge and practice was 13.72 and 18.54 was greater than tabulated value 1.991 at 0.05 level of significance. The study results depicts that, there was significant association between the post-test knowledge score and type of family and birth order of child. And there was also significant association between post-test practice score and education.

Keywords: *Planned teaching programme, mothers of under five children, importance of play activities*

Introduction

“The children of today, are the adults of tomorrow. They deserve to inherit a safer, fairer and healthier world. There is no task more important than providing healthful environment.”

-Gro Harlem Brundtland.

Today's children are citizens of tomorrow, so the health of the children is very important in determining the prosperity of a country. Indian journal of pediatrics (2005) indicated that 20% of children have some form of psychological problem and that of 70% of these are

helped through the use of psychological based therapies such as play and creative arts.¹

Play is the key center of a healthy child's life. Play provides the opportunities to be free, creative and expressive. Play is crucial for your child social, emotional, physical, cognitive growth.²

Play also has important therapeutic value for helping the child to deal with crisis situations, such as hospitalization. In this case, it can positively influence the physical and emotional recovery of the child to make the hospitalization process less traumatic, and accelerate

the child's recovery. In the hospital context, play is often used for role play and conflicts, promoting catharsis, which signifies relief and purification of the individual. After all, expression through play is the most natural form of self-therapy at the child's disposal.³

Hospitalization constitutes an unpleasant experience mostly for children, who suddenly have to leave the familiar place of their home and the persons who are important for them, and stop their favorite activities, including play.⁴

As a result, play is often disregarded, or considered of minor importance. However, the role and value of play increases when the child is repeatedly hospitalized, mostly due to a chronic disease or disability, since it decisively contributes to emotional, mental well-being, self-confidence and self-esteem.⁵

Epidemiologic evidence shows that 8 % of children between the ages of 5 and 17 suffer from difficulties due to anxiety. Indian journal of pediatrics (2005) indicated that 20% of children have some form of psychological problem and that of 70% of these are helped through the use of psychological based therapies such as play and creative arts.¹

Need of The Study

"The sky's awake so I'm awake so we have to play".

-Princess Anna from Disney's frozen

Hospitalization is a stressful and threatening experience, which can be emotionally devastating to children. Hospital play interventions have been widely used to prepare children for invasive medical procedures and hospitalization. Nevertheless, there is an imperative need for rigorous empirical scrutiny of the effectiveness of hospital play interventions, in particular, using play activities to ease the psychological burden of hospitalized children.⁶

In South Asia (2016) 24.8 % of under five deaths in 2016 occurred (1.2 million deaths, 95 % UI 1.2 million to 1.3 million). Global disease burden study has revealed that in 2016, 0.9 million under five children died in India. According to data from the national family health survey 4, the under-five mortality rate in India stands

at 50 per 1000 live births down from 74 in the 10 years between 2005-06 and 2015-16. This can be reduced by demonstration, health education and guidance to the parents and creating awareness and making changes towards the health care branches.²

The study was conducted to assess the effectiveness of play therapy on anxiety among hospitalized children in selected hospital at Vadodara. In experimental posttest mean score was 37.87 and SD was 14.708 therefore the research hypothesis was accepted. So it clearly shows that the level of anxiety was reduced in experimental group in post-test. The study concluded that children's were anxious in the pre-test and in the post-test shows that children's were not anxious. So, it indicates that play activities was effective.⁷

Statement of the Problem

A study to evaluate the effectiveness of planned teaching programme on knowledge and practices regarding the importance of play activities among the mothers of under five children during attending OPD in the selected hospital, Bardoli, Gujarat.

Objectives

1. To assess the knowledge regarding importance of play activities among the mothers of under five children before and after planned teaching programme.
2. To assess the practices regarding importance of play activities among the mothers of under five children before and after the planned teaching programme.
3. To compare the knowledge and practices scores regarding the importance of play activities among the mothers of under five children during hospitalization in the selected hospital, Bardoli, Gujarat.
4. To associate the effect of knowledge and practices scores with their selected demographic variables such as age, education, family income etc.

Hypothesis

H1: There will be a significant difference between the mean pre-test and post-test knowledge scores of mothers regarding importance of play activities in under five children.

H2: There will be a significant difference between the mean pre-test and post-test practices scores of mothers regarding importance of play activities in under five children.

H3: There will be a significant association between the post-test knowledge and practices scores with selected socio-demographic variables of mothers regarding importance of play activities.

Material and Method

Research design

Pre-experimental one group pre-test post-test design which is an experimental research design.

Setting

Sardar hospital, Bardoli

Sample

mothers of under five children who attending OPD in the Sardar hospital of Bardoli, Gujarat.

Inclusion criteria

1. Mothers of under five children who are available during time of data collection.
2. Mothers who can comprehend in Hindi and Gujarati language.

Exclusion criteria

1. Mothers of under five children who are not willing to participate.
2. Critical ill children's mother during the time of data collection.

Tool for data Collection

Tool 1: socio-demographic Performa with 12 items namely; age of the mother, marital status, religion, residence, education, occupation of the mothers, type of family, number of children, monthly income of family, age of the child, sex of the child, and birth order of the child.

Tool 2: structured interview schedule which consists of 30 questions on knowledge regarding importance of

play activities in children.

Questionnaire Procedure

For knowledge assessment – If answer right - 1

If answer wrong- 0

Scoring interpretation of knowledge:

Poor knowledge: 1-33 %

Average knowledge: 34-66 %

Good knowledge: 67-100 %

Tool 3: Inventory checklist which consists of 14 questions.

Questionnaire Procedure

Positive statement – 1

Negative statement – 0

Scoring interpretation of practice:

Poor practice: 1-33 %

Average practice: 34-66 %

Good practice: 67-100 %

Reliability

Reliability of the structured interview schedule among the 5 selected mothers was calculated by using test, re-test method followed by Karl Pearson's coefficient of correlation(r).

Data Collection Procedure

The researcher obtained written permission from the concerned authority, Medical Superintendent of Shree Sardar Smarak Hospital, Bardoli, 15th April to 27th April. Each participants were taken consent and assured confidentiality of their responses. The average days taken for data collection was 13. Sample collection was done from pediatric OPD. Each day of data collection took maximum 3 to 4 hours of duration to conduct both the pre-test and providing PTP. After 7 days post test was administered to assess the knowledge and practice of the mothers of under five children regarding importance of play activities.

Statistical Design

Data were verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS version 20.0) was used. Descriptive statistics were applied (e.g., mean, standard deviation, frequency and percentages). Test of significance (chi square and paired t test) was applied to test the study hypothesis.

Analysis

Table 1: Mean, Median, mode, standard deviation and range of knowledge score of mothers

n=50

Area of Knowledge	Mean	Median	Mode	Standard deviation	Range
Pre test	18.66	18	17	3.80	13-27
Post test	23.50	23	23	2.55	17-29
Difference	4.84	5	6	1.25	2

Table 2: Mean, Median, mode, standard deviation and range of practice score of mothers

n = 50

Area of Practice	Mean	Median	Mode	Standard deviation	Range
Pre test	9.7	10	10	1.01	7-11
Post test	11.64	12	12	0.74	10-13
Difference	1.94	2	2	0.27	1

Table 3: Significance of mean difference between Pre-test and Post-test knowledge score of mothers.

n=50

Knowledge score				Mean difference	SD Difference	SEd	t- value		Significance
Pre-test		Post-test					Table value	Calculated value	
Mean	SD	Mean	SD						
18.66	3.80	23.50	2.55	4.84	1.25	0.35	1.991	13.72	S

Table 4: Significance of mean difference between Pre-test and Post-test practice score of mothers
n=50

Practice score				Mean difference	SD Difference	SEd	t- value		Significance
Pre-test		Post-test					Table value	Calculated Value	
Mean	SD	Mean	SD						
9.70	1.01	11.64	0.74	1.94	0.27	0.10	1.991	18.54	S

Conclusion

The present study was undertaken by the researcher to evaluate the effectiveness of planned teaching programme on knowledge and practice regarding the importance of play activities among the mothers of under five children during attending OPD in the selected hospital, Bardoli, Gujarat. The conceptual framework of the present study was based on Imogene king's goal attainment theory 1981. A sample of 50 mothers were selected by using non-probability convenient sampling technique, one group pre-test post-test design was used. Structured interview schedule and inventory checklist was used as a tools to assess the knowledge and practices of mothers of under five children. Data were analyzed and hypothesis were tested using descriptive (frequency, percentage, mean, median, mode, standard deviation) and inferential statistics (paired "t" test and chi square). The data is interpreted in the forms of tables and graphs.

Recommendations

In the light of the present study findings, the researcher makes the following recommendations for the future research:

1. The study can be replicated in larger sample for better generalization.
2. Similar study can be conducted in different groups and also at different settings.
3. A comparative study can be carried out in different community to find out the significant difference between rural and urban mothers.

4. Descriptive study can be conducted to assess the knowledge and practices of mothers regarding importance of play activities in rural area.
5. Video assisted teaching programme can be used to assess knowledge of mothers regarding importance of play activities.
6. To assess the attitude of the parents regarding importance of play activities in children.
7. A study can be conducted to assess the effectiveness of workshop on importance of play activities by administering pre-test and post-test among the participants.
8. The similar study can be conducted with different research design.

Conflict of Interest: There is a no conflict during the research study.

Source of Funding: Use a self-funding during the research study.

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Effect of an Educational Training Program in Tracheostomy Care on Nurses' Knowledge and Skills

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Abstract

Background: A tracheostomy is a surgical procedure in which an opening is made into the anterior wall of the trachea. With an increasing demand for intensive care beds more nurses in acute and high dependency wards will be expected to care competently for patients with tracheostomy tubes.

Aim: To evaluate Nurses' knowledge and skills in performing tracheostomy care and to determine the effectiveness of the educational training program on nurses knowledge and skills.

Methods: A quasi-experimental study (one group) conducted at Sinnar Teaching Hospital (STH). A total coverage technique was used 45 nurses were included. measurements of the group were made both before and after training program.

Results: The total knowledge percentage before training program ranged from (2.2%) to (46.7%), and after training program, ranged from (57.8%) to (88.9%). 91.1% of respondents (41) they were not attending training course in Tracheotomy Care before. There was statistically significant different in the mean total knowledge score of the participants before and after the program at p value level = (0.00).

Conclusion: The nurses included in the study do not have adequate knowledge and skills in the evidence-based guidelines for tracheostomy care. There is no correlation between the qualifications or years of experience and knowledge of nurses regarding tracheostomy care. Continuing professional development programme on tracheostomy care should be made compulsory for all nurses.

Keywords: Tracheostomy, training program, nursing care, nursing skills, nursing knowledge.

Introduction

A tracheostomy is a surgical procedure in which an opening is made into the anterior wall of the trachea, below the cricoid cartilage, usually between the second and third rings of cartilage to maintain a patient airway^[1-3]. The two terms tracheotomy and tracheostomy are very similar, they are often and falsely used interchangeably, resulting in some degree of confusion. tracheotomy refers to the surgical procedure during which an incision is made into the trachea to create an alternative airway. The opening that is formed is called a tracheostomy, also referred to as the stoma, and is secured by the placement

of a tracheostomy tube through which the patient will be able to breathe^[4]. A tracheostomy requires surgical dissection; therefore, it is not typically an emergency procedure like endotracheal tube, which can be quickly inserted in the most emergency situations. Tracheostomy consider as a routine procedure in the practice of otolaryngology Ear, Nose and Throat (ENT) critical care and in other areas.

Care of Patient with tracheostomy is a true emergency and an essential aspect of effective airway management^[5, 6]. However, this is usually associated with several potential complications can be divided into

early those associated with insertion of the tracheostomy or late those arise following the procedure. Ranging from; pain, hemorrhage, tube displacement, blocked of tube to in extreme cases, cardiac dysrhythmias, trauma, atelectasis, infection, and death^[5, 7]. All these risks are preventable or may at least be minimized by good tracheostomy care.

In view of such hazards, it is imperative that nurses must be aware of these risks and were able to practice according to current research recommendations on all aspects of tracheal care. Specialized training enhances nurses' confidence and perceived delivery of patient care regardless of nurses' experience level^[5-7].

With an expanding interest for concentrated consideration beds, more medical caregivers in intense and high reliance wards will be required to really focus capability on patients with tracheostomy tubes^[6]. Moreover, to the way that, understanding with tracheostomies are not restricted to the serious consideration setting however present on a wide assortment of nursing units; intense consideration, pediatrics, geriatrics, oncology, long haul care offices, recovery units, medication, and medical procedure units^[8, 9].

Some specialist suggested that general ward nurses (other than specialists) should be able to care for patients with tracheostomy tubes if they have no other respiratory problems. However, there is evidence that practitioners are not adequately educated or experienced to care for patients with tracheostomy tubes in general wards^[7].

Psychological aspects of care are also important, and some patients may be unable to communicate verbally, causing frustration and anxiety^[10]. The presence of a tracheostomy tube can also affect the person's body image, cause embarrassment, and affect their psychosocial health^[11].

Nurses have most contact with tracheostomized patients; therefore, their role in providing safe and effective care cannot be overestimated^[12]. Although nurses must recognize and work within their limits of competence, they must also participate in appropriate learning and practice activities to develop and maintain their competence^[13]. Patients expect that nurses who

provide tracheostomy care to be competent and confident practitioners and have a professional responsibility and possess the necessary skills and knowledge^[14].

Most of the nurses were had a poor level of knowledge concerning Tracheostomy care, in term of, indications of insertion, types of tubes, aseptic techniques, stoma care, and suction technique^[15]. Nurses will always benefit from continuing education and being kept up to date regarding changing aspects of care within a hospital setting. In Sudan, there were many educational programs for nurses, although no educational program before this study provided to nurses regarding competences of tracheostomy care^[16-18].

The aim of this study is to evaluate nurses' knowledge and skills in performing tracheostomy care and to determine the efficiency of the educational training program on nurses knowledge and skills.

Methods

Study area

This study carried out in Sennar Teaching Hospital in Sennar state, it is one of the 18 states of Sudan. It located in the central east of Sudan, lies about 300 kilometers (186 miles) south east of Khartoum capital of Sudan. This study was carried out in three wards at Sennar Teaching Hospital, surgical wards, trauma, emergency department, and intensive care unit.

Study design

We used a quasi-experimental study design (one group) and we run measurements to the group before and after training program.

Data collection

We collected data by structured questionnaire (anonymous) and observational checklists with an information letter and a consent form attached to it was design in written form, it included questions regarding existing knowledge, and practical applications of tracheostomy care.

Data analysis

Descriptive statistics were used to interpret the demographic data: sex, years of experiences and

qualification. Descriptive and inferential statistics were used to describe the knowledge and skills levels of the participants. Multiple measures were used (Mean, frequency, percentage, and standard deviation) to examine the variables. Tables, bar, and pie diagram were drawn to describe frequencies and percentages. Means and standard deviations were used to summarize and to compare pre- and post-knowledge and skills scores.

Results

The study was conducted among 45 nurses at

different education levels (a baccalaureate degree, diploma, and school graduate nurses) working in an area where the study was conducted. Distribution of sample according to the Gender category the majority (62.2%) were female. According to educational qualifications, most of the participants (57.8%) has a diploma degree. According to years of experience and attendance of the training course in tracheotomy care most of participants 41 nurses (91.1%) were not have training program before as shown in Table 1.

Table 1: Frequency distribution of data according to educational qualifications, Years of experience, and Attending training course in Tracheotomy Care (n=45)

Qualifications	Frequency	Percent%
School Nursing Certificate	15	33.3
Diploma degree	26	57.8
Baccalaureate B.Sc.(N)	4	8.9
Post Graduate	0	0.0
Total	45	100.0
Years of experience		
1-3	15	33.3
3-5	14	31.1
5-7	6	13.3
< 7	10	22.2
Total	45	100.0
Attending training course in Tracheotomy Care		
None	41	91.1
Once	4	8.9
Twice	0	0.0
More	0	0.0
Total	45	100.0

Distribution of data according to the knowledge in tracheostomy care elements before intervention program, showed that the total knowledge percentage ranged from (2.2%) to (46.7%) as shown in Table 2.

Table 2: Distribution of data according to the knowledge in tracheostomy care elements before intervention program(n=45)

Question NO	Knowledge Questions	Complete correct task	
		Frequency	Percent %
Q 5	Explanation of the procedure to the patient is it essential and consider first step to	18	40
Q 6	A tracheostomy is surgical procedure usually performed	5	11.1
Q 7	What Types of Tracheostomy procedure	13	28.9
Q 8	Tracheostomy tubes can be classified by	10	22.2
Q 9	A tracheostomy alters which of the following physiological Process	13	28.9
Q 10	The most common early tracheostomy complication is	8	17.8
Q 11	An inflated cuff in a tracheostomy tube use for prevention of aspiration	9	20
Q 12	The stoma care which will be performed include	3	6.7
Q 13	The important measures which must be performed prior to suction to reduce risk of infection is	5	11.1
Q 14	An inflated cuff in a tracheostomy tube use for prevention of aspiration	2	4.4
Q 15	The recommended suction pressure for adults is	1	2.2
Q 16	Tracheostomized patient with spontaneously breathing should suctioned	21	46.7
Q 17	Cleaning of inner tube of tracheostomy tube should be done with	6	13.3
Q 18	If unplanned tube changed of tracheostomy tube, what were the reasons for this	13	28.9
Q 19	Explanation of the procedure to the patient is it essential and consider first step to	3	6.7
Q 20	A tracheostomy is surgical procedure usually performed	20	44.4
Q 22	Hand washing essential step before and after the tracheostomy care; Why	20	44.4

Distribution of data according to the knowledge in tracheostomy care elements after the intervention program, showed significant increase in knowledge percentage ranged from (57.8%) to (88.9%) as shown in Table3.

Table 3: Distribution of data according to the knowledge in tracheostomy care elements after the intervention program(n=45)

Question NO	Knowledge Areas	Complete correct task	
		Frequency	Percent %
Q 5	Explanation of the procedure to the patient is it essential and consider first step to	39	86.7
Q 6	A tracheostomy is surgical procedure usually performed	32	71.1
Q 7	What Types of Tracheostomy procedure	38	84.4
Q 8	Tracheostomy tubes can be classified by	31	68.9
Q 9	A tracheostomy alters which of the following physiological Process	22	48.9
Q 10	The most common early tracheostomy complication is	34	75.6
Q 11	An inflated cuff in a tracheostomy tube use for prevention of aspiration	36	80
Q 12	The stoma care which will be performed include	29	64.4
Q 13	The important measures which must be performed prior to suction to reduce risk of infection is	31	68.9
Q 14	An inflated cuff in a tracheostomy tube use for prevention of aspiration	40	88.9
Q 15	The recommended suction pressure for adults is	36	80.8
Q 16	Tracheostomized patient with spontaneously breathing should suctioned	34	75.6
Q 17	Cleaning of inner tube of tracheostomy tube should be done with	34	75.6
Q 18	If unplanned tube changed of tracheostomy tube, what were the reasons for this	26	57.8
Q 19	Explanation of the procedure to the patient is it essential and consider first step to	31	68.9
Q 20	A tracheostomy is surgical procedure usually performed	31	68.9
Q 22	Hand washing essential step before and after the tracheostomy care; Why	35	78.9

Summary statistics of knowledge before and after intervention program is shows in table4 there was significant increase in knowledge of participants P.value 0.000.

Table 4: Summary statistics of knowledge before and after intervention program (n=45)

Knowledge Questions	Complete correct task				P value
	Before program		After program		
	Frequency	Percent %	Frequency	Percent %	
Q5	18	40	39	86.7	0.00
Q6	5	11.1	32	71.1	
Q7	13	28.9	38	84.4	
Q8	10	22.2	31	68.9	
Q9	13	28.9	22	48.9	
Q10	8	17.8	34	75.6	
Q11	9	20	36	80	
Q12	3	6.7	29	64.4	
Q13	5	11.1	31	68.9	
Q15	1	2.2	36	80.8	
Q16	21	46.7	34	75.6	
Q17	6	13.3	34	75.6	
Q18	13	28.9	21	46.7	
Q19	3	6.7	31	68.9	
Q20	20	44.4	31	68.9	
Q22	20	44.4	35	78.9	

Practice score was significantly changed in all performances after the training program compare to same group before as shown in table 5.

Table 5: Summary statistics of Mean, Standard deviation, and P.value of practice score before and after the training program (n=45).

No	Performance	Mean		SD		P value
		Pre	Post	Pre	Post	
1	Change of Tracheostomy Dressing & Tie	01.70	21.11	2.69	2.99	0.00
2	Stoma and Skin Care	8.42	22.70	3.57	3.49	0.00
3	Tracheostomy Tube Suctioning	10.13	20.40	2.15	2.81	0.00
4	Change of Tracheostomy Inner Tube	7.46	19.86	2.10	3.58	0.00
5	Tracheostomy Tube Changes	10.70	21.11	2.69	2.99	0.00

Discussion

In the present study, participants according to level of formal education, our study showed that most participants (57.8%) had diploma degree in nursing sciences from nursing faculties. This means that majority of participants had a minimum qualification. These findings are consistent with previous research study from India done by SREEJA T.P (2007) [19].

Regarding the distribution of sample according to years of experience, the data in our study showed that most of nurses (33.3%) were had three years' experience and below, which considered as less experience. In a study done by NISHAMOL. Y. N in Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST), (November 2011) result showed, that majority of nurses were had below 10 year experience [20]. The T-test was used to find out whether there is any association between the years of experience and knowledge, there are not statistically significant different (p value =0.616).

The distribution of participants according to attendance training course in tracheotomy care, in this study showed that most nurses (91.1%) were not specifically trained in care of tracheostomy patients. This

agrees with a study done by Mondrup et al, in Denmark (2012) where (47%) of the studied participants, reported no formal staff education or training in tracheostomy care, and he further states that the lack of enough training in tracheostomy care, is a huge contributor to morbidity and mortality of the patients. This in essence affects negatively on the standards of tracheostomy care because training in tracheostomy is essential specialized training enhances nurses' confidence and perceived delivery of quality patient care regardless of nurses' experience level [5].

This finding showed what happening in the study setting where nurses continue providing care without specifically trained in care of tracheostomy patients, these lead to confusion and lack of parity of care.

Concerning the knowledge background of the participants in tracheostomy care before the program, the data given study revealed that the total knowledge background of the participants ranged from (2.2%) to (46.7%). These findings were supported with study done in Sudan by Mahasin (2016) showed results close to our study, that majority of nurses (71%) were had lacked knowledge concerning tracheostomy care, this is evidence that nurses are not adequately educated

or experienced to care for patients with tracheostomy tubes^[21].

In addition, the study findings showed that majority of participants' were lacked knowledge concerning tracheostomy complications, the percentage of correct answers was only (17.8%). In contrast to the study from India done by SREEJA T.P (2007) showed an opposite result to our study, revealed that the knowledge of nurses in tracheostomy care ranged from (96.2-100%)^[19].

Tracheostomy care usually associated with several potential complications can be divided into early complications those associated with insertion of the tracheostomy or late complications those arise following the procedure. Ranging from; pain, hemorrhage, tube displacement, blocked of tube to in extreme cases, cardiac dysrhythmias, trauma, atelectasis and, infection and death^[5, 6]. All these complications are preventable or may at least be minimized by good tracheostomy tube care. In view of such hazards, it is imperative that nurses are aware of these risks and can practice according to current research recommendations on all aspects of tracheal care. Specialized training enhances nurses' confidence and perceived delivery of quality patient care regardless of nurses' experience level ^[5].

After the training program, our study showed marked differences in participant's knowledge and practices concerning tracheostomy care between before and after intervention program. Findings showed that the participants knowledge score increased to minimum knowledge score (57.8%) in some items to reach (88.9%) in others.

The "t" test was used to find out whether there is any significant difference in the mean knowledge between pre- and post-the intervention program. There was statistically significant different in the mean total knowledge score of the participants before and after the program at (p value level = 0.00). This indicate that the educational program was successful in upgrading the participants knowledge concerning tracheostomy care.

Concerning the performance of the participants regarding tracheostomy care, the practice was assessed by using performance evaluation elements checklist. The correct practice getting one marks and the incorrect

practice getting half mark and not done getting zero mark.

The findings in this study illustrated that most of practice elements before the training program were inadequate, and the most of items scored ranged from zero to maximum (30%) before intervention, except for limited numbers of practices elements such as explanation of the procedure, wash hands, wear non-sterile gloves, disposal of used supplies and removal of used gloves.

The nurse who is accountable for giving care; require the following skills: appropriate respiratory assessment; an appreciation and understanding of humidification; when and how to perform airway suction; stoma care; and first-line management in the instance of tube blockage or displacement and emergency management. To support staff in caring for these patients safely and competently, provision of training, support and ready access to equipment is required accordingly, with the abundance of proof accessible, it is significant that the medical attendant is sufficiently prepared and completely able to be taken care of by a patient with a tracheostomy^[22].

After exposure to the training program the percentage of correct answers was improved, and it show increased score of frequencies and percentages of performance regarding tracheostomy care element after the intervention program. reach 100% in some items. Therefore, learning modules may increase knowledge of a particular topic and may provide learning opportunities in which the learner can feel more autonomous than with traditional classes. Nurses will always benefit from continuing education and being kept up to date regarding changing aspects of care within a hospital setting. These are a low-cost way to provide information so that nurses are better able to care for their patients. learning modules can be constructed on paper, through video, or computer and the subject matter should be concise and focused on the topic ^[23].

To compare between the results of pre and post the intervention program, to found out whether there is any significant difference in the mean practice "t" test was used between mean pre and post the intervention program ,and there are statistically significant different in the mean total practice score of the participants before

and after the program at (p value level = 0.00), and this indicate that the educational program was successful in upgrading the participants skills concerning tracheostomy care.

Overall, this study showed that the designed training program was successful in upgrading participant's knowledge and performanceregarding tracheostomy care. This success can be attributed to the clarity of the program content items and material, the use of simple language and the clear educational methods. The high interest of participants shared in study and their commitment constitute major factor in success of that work. The short time between pre and posttest for evaluation of the training course may also considered as contributing factor of high statistically significant results.

Conclusion

Evidence based guidelines and protocols for best practice should be established to follow in tracheostomy care and updated regularly. Nursing staff members should be motivated and supported to develop their careers and raise their interest in research by attending scientific conferences, to keep themselves updated with current practice. Continuing professional development programme should be made compulsory for all nurses.

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Source of Funding: The authors declare that this study is a self-funding and no fund from any someone else.

Ethics Clearance: The research proposal with educational package was submitted to the University Postgraduate research panel for permission to conduct the study and permission was obtained to ensure compliance with ethical standards. A formal written permission was obtained from the general director of the Hospital to conduct the study.

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A Comparative Study to Assess the Level of Stress among Staff Nurses working in Psychiatric and Multispeciality Hospitals, Bangalore

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Abstract

With a view to assess the level of stress among staff nurses working in psychiatric and multi speciality hospitals, a non- experimental comparative study with descriptive approach was undertaken among 120 Staff Nurses. Simple random sampling techniques were used in selecting the staff nurses. The result revealed that 56.7% moderate stress in psychiatric hospital nurses and 65% in multispeciality hospital nurses are having severe stress level.

Key words: Assess, Stress, Staff Nurses, Multispeciality hospital, Psychiatric hospital

Introduction

Stress is a subjective phenomenon based on individual perceptions, producing positive(eustress) and negative(distress) perspectives. Stress symptoms commonly include a state of alarm and adrenaline production, short term resistance as a coping mechanism and exhaustion as well as irritability, muscular tension, inability to concentrate and a variety of physiological reactions such as headache and elevated heart rate¹. Chronic stress can affect many of the bodys immune systems as can an individuals perceptions of and reactions to stress and can create more vulnerability to infections.²

The workplace for nurses provides a multiplicity of sources of stress.³ The concept of stress in the workplace is of great importance in health care and especially nurses are generally considered a high risk group regarding work stress and burnout. This syndrome has been a major concern in the field of occupational health and healthcare worker, particularly those caring for patients suffering from serious illness.Nurses environment include an enclosed atmosphere, time pressure, no second chance, unpleasant sights and sounds, long standing hours⁴.

Nurses are trained to deal with these factors but chronic stress takes a toll when there are additional stress factors like home stress, conflict at work, inadequate

staffing, poor teamwork, inadequate training and poor supervision.⁵ In the absence of doctors, nurses are on the front line and have to face verbal abuse from patients and relatives for issues that may not be directly connected to their work.⁶ It is important to identify the extent and source of stress in a healthcare organization to find stress management strategies to help the individual and the environment. Unless the healthcare setups acknowledge the problem and taken primitive steps to tackle the growing menace of chronic stress, personal cost will keep rising and add to the already soaring costs of care. Nurses absenteeism, turnover and sickness significant increase the cost of employment in healthcare units⁷.

Objectives of the Study

1. To assess the level of stress among the nurses working in psychiatric hospital.
2. To assess the level of stress among the nurses working in multispeciality hospital.
3. To compare the level of stress among nurses working psychiatric and multispeciality hospital.
4. To associate the level of stress among nurses working in psychiatric and multispeciality hospital with their selected demographic variables.

Hypothesis

H1: There will be a significant difference in level of stress between the nurses working in psychiatric and multispecialty hospital.

H2: There will be a significant association between the level of stress of study subjects with their selected demographic variables.

Methodology

Non experimental comparative research design and descriptive approach was selected to carry out the study.

The study population comprised of staff nurses working in selected hospitals at Bangalore. The sample size for study was 120 staff nurses (60 staff nurses working in psychiatric hospitals and 60 staff nurses working in multispecialty hospitals)

Simple random sampling technique was used for selecting sample of the study. Standardized questionnaire Expanded Nursing Stress Scale(ENSS) (French et al:2000) was the tool used for the study. Part-I was socio demographic variables and Part II was Standardized questionnaire Expanded Nursing Stress Scale(ENSS) with nine sections.

Result

Table-1 Percentage distribution of Psychiatric hospital Nurses and Multispecialty Hospital Nurses according to their demographic variables

Sl No	Demographic	Psychiatric		Multispecialty	
	Variable	Hospital		Hospital	
		No	%	No	%
1	Age in years				
	< 25	21	35	20	33.3
	26-30	19	31.7	20	33.3
	>30	20	33.3	20	33.3
2	Gender				
	Female	30	50	33	55
	Male	30	50	27	45
3	Nursing Qualification				
	ANM	7	11.7	10	16.6
	GNM	23	38.3	21	35
	Post B.Sc	6	10	8	13.3
	B.Sc	22	36.7	19	31.6
	M.Sc	2	3.33	2	3.3
4	Marital Status				
	Married	35	58.3	32	53.3
	Single	21	35	25	41.7
	Divorced	2	3.33	2	3.3
	Widowed	2	3.33	1	1.7
5	Total experience(years)				
	0-1	18	30	16	26.6
	2--3	26	43.3	29	48.3
	Above 5	16	26.7	15	25
6	Current job Experience(years)				

Cont... Table-1 Percentage distribution of Psychiatric hospital Nurses and Multispecialty Hospital Nurses according to their demographic variables

	0--3	36	60	28	46.7
	3--5	15	25	7	11.7
	Above 5	9	15	25	41.7
7	Working Area				
	OPD	7	11.7	4	6.7
	Wards	17	28.3	14	23.3
	ICU	7	11.7	9	15
	Emergency room/Area	22	36.7	28	46.7
	Others	7	11.7	5	8.3

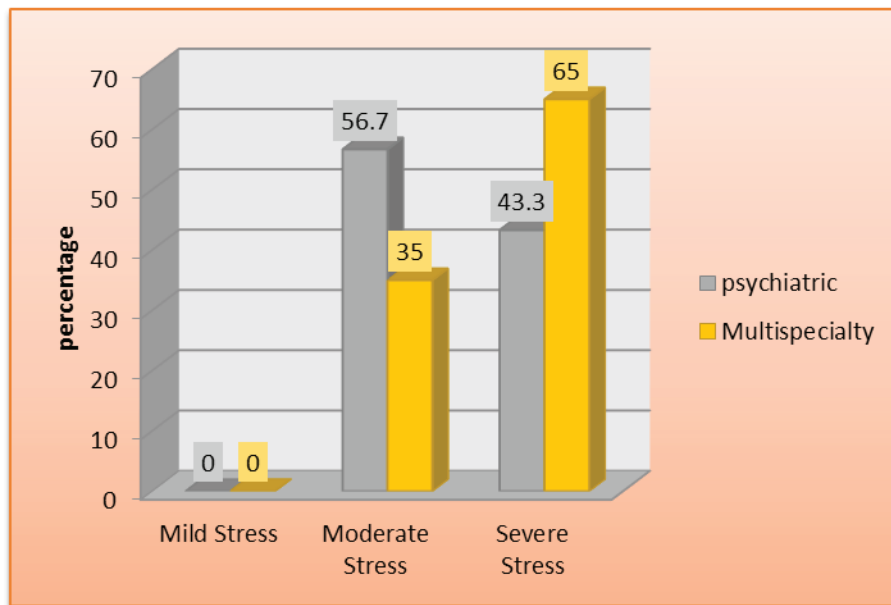


FIGURE 1:- COMPARISON OF DISTRIBUTION OF LEVEL OF STRESS OF STAFF NURSES WORKING IN PSYCHIATRIC AND MULTISPECIALTY HOSPITALS.

Majority of the subjects 35% were in the age group of <25 years. In this study gender is equally 50% female and male are working. Almost 38.3% are GNM in nursing qualification. About 58.3% were married. About 43.3% of staff nurses are having total experiences between 2-3 years. About 60% of staff nurses are having current job experiences between 0-3 years. About 36.3% staff nurses are working in emergency room/area.

Majority of the subjects 33.3% were in the age group of <25 years. In this study majority 55% females are there. Almost 35% are GNM in nursing qualification. About 53.3% were married. About 48.3% of staff nurses

are having total experiences between 2-3 years. About 46.7% of staff nurses are having current job experiences between 0-3 years. About 46.7% staff nurses are working in emergency room/area.

From the present study, after the tabulation and analysis it is evidenced that none of the samples are having mild stress in both psychiatric and multispecialty hospital. 34(56.7%) in psychiatric hospital and 21(35%) multispecialty hospital staff nurses are having moderate stress.26(43.3%) in psychiatric hospital and 39(65%) in multispecialty hospital are having severe stress. The study showed that there exists more stress among staff

nurses working in multispecialty hospital 39(65%)than psychiatric hospital.

Discussion

The discussion is based on the data procured from the comparative study to assess the level of stress among staff nurses working in psychiatric and multispecialty hospitals.

Section I:

Describes the demographic variables of the Psychiatric hospital Nurses and Multispecialty Hospital Nurses

1. Psychiatric hospital

Majority of the subjects 35% were in the age group of <25 years. In this study gender is equally 50% female and male are working. Almost 38.3% are GNM in nursing qualification. About 58.3% were married. About 43.3% of staff nurses are having total experiences between 2-3 years. About 60% of staff nurses are having current job experiences between 0-3 years. About 36.3% staff nurses are working in emergency room/area.

2. Multispecialty hospital

Majority of the subjects 33.3% were in the age group of <25 years. In this study majority 55% females are there. Almost 35% are GNM in nursing qualification. About 53.3% were married. About 48.3% of staff nurses are having total experiences between 2-3 years. About 46.7% of staff nurses are having current job experiences between 0-3 years. About 46.7% staff nurses are working in emergency room/area.

Section II:

Assess the level of stress among staff nurses of Psychiatric hospital and Multispecialty Hospital.

From the present study, after the tabulation and analysis it is evidenced that none of the samples are having mild stress in both psychiatric and multispecialty hospital. 34(56.7%) in psychiatric hospital and 21(35%) multispecialty hospital staff nurses are having moderate stress.26(43.3%) in psychiatric hospital and 39(65%) in multispecialty hospital are having severe stress.

Section III:

Comparison of the level of stress among staff nurses of Psychiatric hospital and Multispecialty Hospital

Table shows that there were significant differences in the level of stress among staff nurses working in psychiatric and multispecialty hospital The study showed that there exists more stress among staff nurses working in multispecialty hospital 39(65%)than psychiatric hospital.

Section IV:

Association between demographic variables with level of stress among staff nurses of Psychiatric hospital and Multispecialty Hospital

Gender and working area have significant association with stress of staff nurses in psychiatric hospital. Variables such as age, nursing qualification, marital status, total experiences (year), and current job experiences (year) have no significant association with stress of staff nurses in psychiatric hospital. Current job experiences (year) and working area have significant association with stress of staff nurses in multispecialty. Variables such as age, gender, nursing qualification, marital status, total experiences (year), have no significant association with stress of staff nurses in multispecialty hospital.

Conclusion

The study findings showed that the staff nurses working in multispecialty hospital are having more stress than staff nurses working in psychiatric hospital and there are some demographic variables associated with level of stress among staff nurses in psychiatric and multispecialty hospital.

Recommendations: Keeping in view regarding findings of the present study, the following recommendations were made:

1. An experimental study can be conducted.
2. An evaluative study can be conducted to test the Effectiveness of self-instructional module.
3. The same study can be replicated on a large sample to generalize the findings to a large population

4. A similar study can be conducted to evaluate the effectiveness of teaching program on stress management.

Conflicts of Interests: Nil

Sources of Funding: No agencies given fund. It is self funded

Ethical Clearance: Prior permission was obtained from research committee of institute and RGUHS, Bangalore as well as from hospitals and samples.

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The Development of a Professional Competency Evaluation Model of Nursing Students

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Abstract

Purpose: The purpose of this research was to develop a professional competency evaluation model of nursing students.

Method: It was conducted through a research and development process divided into 4 steps as follows. 1) Studying and analyzing elements and indicators from documents, interviewing experts, focus group and surveying opinions. 2) Drafting a model by 10 experts applying the multi-attribute consensus reaching. 3) Implementing among nursing students, classmates, and teachers. 4) Evaluating by participants engaged in the implementation. The statistics for data analysis comprised mean, standard deviation, median, interquartile range, the Mann-Whitney U test and the Kruskal-Wallis Test.

Findings: The results of the research were as follows. 1) The core competency of nursing students consisted of 7 elements and the functional competency included 4 elements. 2) The model had a structure that the evaluation objectives, expected outcomes, indicators, criteria, evaluators, method, duration, and feedback. 3) It had a discriminant validity and could distinguish different professional competencies of the nursing students. 4) The model was at a high level for all its aspects; feasibility, appropriateness, accuracy, and usefulness.

Conclusion: The model was to develop a professional competency of nursing students.

Keywords: Development, Evaluation Model, Professional Competency, Nursing Students

Introduction

Professional competency is the demonstration of knowledge, capability, attitudes, desired characteristics, and skills for nursing practice in accordance with professional standards which result in safety and satisfaction of service recipients.

Professional competency contains behavioral characteristics that are expressed by an individual

and can be measured and observed. These behavioral characteristics are also commonly expected by the public, the community, and organizations. Professional competency is highly important to professional nurses and nursing students who are in the pre-profession effectively process.

An approach by which the quality in a person can be assured is competency evaluation. This type of evaluation provides knowledge, capability, attitudes, desired characteristics, and necessary skills for nursing practice based on the professional standards. The results from competency evaluation are useful for improving and developing individuals to have better performance¹. Competency evaluation is also a tool to build enthusiasm and motivation in students as well

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as identifying and solving problems they encounter. Competency evaluation can allocate resources to expand scopes and approaches of evaluation². Competency evaluation can help validate a person's performance effectively³. It makes them aware of their own strengths and weaknesses. It reveals self-development progress that leads to better competence.

A review of the previous research reveals a series of problems in competence evaluation as follows. 1) The results from such competence evaluation are unaccepted, unreliable, and biased⁴. After evaluation, evaluated students are not provided with feedback in order to improve themselves⁵. Data obtained from competence evaluation is not applied to promote competency⁶. 2) The summative evaluation model is more emphasized than the formative evaluation model⁷. Mistakes in the implementation of these models are found⁶. 3) Evaluators are not adequately trained in competence evaluation⁵. In summary, both domestic and international competence evaluation have similar problems on results, models, and evaluators.

From the mentioned state and problems above, it was interesting to research and develop a professional competency evaluation model of nursing students. It should be applied to evaluating actual professional competency of nursing students. In so doing, nursing students will be provided with feedback to develop themselves to meet the professional standards. Besides, individual and overall developmental guidelines will effectively be specified. This will help improve teaching and learning management to meet the goals of the educational institutions.

Objectives

The main objective of this research was to develop a professional competency evaluation model of nursing students. The specific objectives of the model were as follows.

- 1) To study and analyze elements and indicators of professional competency of nursing students.
- 2) To develop a professional competency evaluation model of nursing students.
- 3) To study the implementation of the model.

- 4) To evaluate the model.

Material and Methods

Design: A research and development process which was divided into 4 steps as follows.

Step1: Studying and analyzing elements and indicators of professional competency of nursing students from documents and research, interviews with experts, focus groups discussion, opinion surveys from groups of instructors, specialists at practicum training places, fresh registered nurses and 1st- 4th year nursing students. Data analysis was as follows; 1) the content validity was analyzed by means of IOC between 0.67-1.00, 2) the documents, interviews, and focus group discussions were analyzed with content analysis and 3) the questionnaire data was analyzed through mean and standard deviation.

Step2: Drafting a professional competency evaluation model of nursing students and its handbook. The multi-attribute consensus reaching (MACR) among the 10 experts was administered to examine the appropriateness and the feasibility of the model and its elements, competencies, indicators, and criteria. A tool was constructed to assess the appropriateness and the feasibility of the model and its elements, competencies, indicators, and criteria. It was a close-ended questionnaire in the form of 5-rating scale. The content validity of the questionnaire was analyzed by IOC with an IOC between 0.75-1.00. The data from the questionnaire was analyzed for the appropriateness and the feasibility of the model. It was analyzed through median compared with the criterion for interpretation using the midpoint. The Kruskal -Wallis test was conducted to analyze the data from the MACR among the 10 experts. The data (qualitative) from the MACR was analyzed with content analysis.

Step3: Implementing the professional competency evaluation model of 40 1st- 4th year nursing students (10 students from each year level), 40 classmates, and 20 evaluating teachers. The purpose was to examine the discriminant validity, strengths and weaknesses, and problems upon using the model and its handbook. The instrument was a professional competency evaluation form of 1st- 4th year nursing students. It was a close-ended

evaluation form in the form of 5-rating scale. For the data analysis, the differences in the competence scores from the 2 groups of nursing students were tested with the Known-Group technique using the Mann–Whitney U test.

Step4: Evaluating the model of 1st- 4th year nursing students by 40 participants engaged in evaluation. The purpose was to examine the feasibility, appropriateness, accuracy, and usefulness of the model itself. The instrument was a form to evaluate the model of 1st- 4th year nursing students and the handbook was a 5-rating scale evaluation form. The data from these evaluation forms was analyzed through mean, standard deviation, and content analysis.

Findings

Step1: Results of the study and analysis of the elements and the indicators of the professional competency of nursing students as follows.

1. Core competency, which is defined as the essential competence a person must have or perform in order to achieve the goals, was consisted of 7 elements were as follows; ethics and the code of ethics and laws, professional characteristics, communication and language usage, interpersonal relationship, leadership and teamwork, self-adjustment, and information technology and digital literacy

2. Functional competency, which is defined as the competence that reflects the knowledge, skills, and characteristics specifically required for a job (Job-based), was consisted of 4 elements were as follows; professional knowledge, cognitive skills, research and innovation, and nursing and midwifery practices as presented in Table 1.

Step2: Results of the construction of the professional competency evaluation model of nursing students and its handbook

The elements of the constructed professional competency evaluation model of nursing students and

its handbook were the objective of the evaluation, items of evaluation, indicators and criteria, evaluators, the methods of evaluation, the period of evaluation, and provision of feedback as presented in Figure 1.

Step3: Results of the implementation of the professional competency evaluation model of nursing students.

The implementation was conducted between 2 groups of nursing students. Group 1 included students who were recognized for their high levels of knowledge, abilities, characteristics, and studiousness based on average academic achievement or awards received from the faculty, the university and organizations. Group 2 included general students. There were differences at a statistically significant level of .05 in 7 elements between the 2 groups; ethics and the code of ethics and laws, professional characteristics, communication and language usage, interpersonal relationship, leadership and teamwork, self-adjustment, and information technology and digital literacy. There were differences at a statistically significant level of .01 in 4 elements; professional knowledge, cognitive skills, research and innovation, and nursing and midwifery practices. This was indicated that the evaluation model had a discriminant validity in all the elements. Group 1 possessed higher competency than group 2 as presented in Table 2.

Step 4: Results of the evaluation of the professional competency evaluation model of nursing students

The 40 participants engaged in this evaluation were those who implemented the evaluation model such as nursing lecturers, specialists at practicum training places, and nursing students and their classmates. The scope of the evaluation covered; the feasibility, appropriateness, accuracy, and usefulness. It was found that all these elements were rated at a high level of standard; feasibility ($\bar{x} = 3.90$, S.D.=0.68), appropriateness ($\bar{x} = 4.05$, S.D.=0.62), accuracy ($\bar{x} = 3.95$, S.D.=0.65), and usefulness ($\bar{x} = 4.15$, S.D.=0.58) as presented in Table 3.

Table1 : The elements and the indicators of the professional competency of nursing students

Elements	Indicators	Opinion		
		\bar{X}	S.D.	Level
1) Core competency - ethics and laws	8	4.41	0.08	Good
- professional characteristics	5	4.37	0.01	Good
- communication and language usage	3	4.39	0.01	Good
- interpersonal relationship	3	4.36	0.02	Good
- leadership and teamwork	5	4.36	0.02	Good
- self-adjustment	2	4.37	0.01	Good
- information technology and digital literacy	3	4.35	0.03	Good
2) Functional competency professional knowledge	12	4.40	0.65	Good
- cognitive skills	3	4.39	0.66	Good
- research and innovation	4	4.38	0.66	Good
- nursing and midwifery practices	9	4.34	0.70	Good

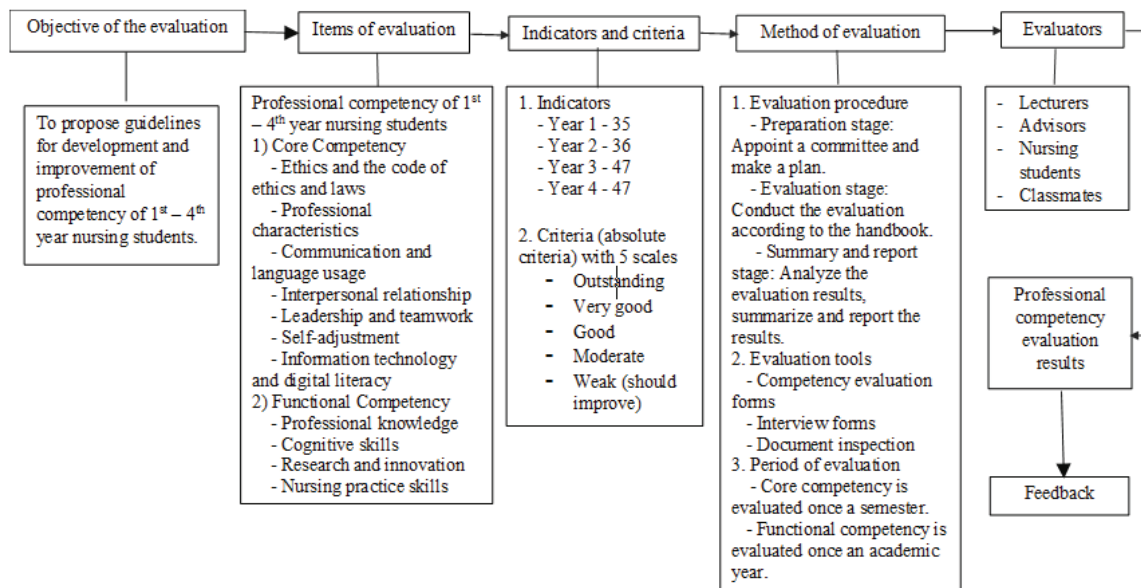
**Figure 1: Professional competency evaluation model of nursing students**

Table2 : The results of professional competency analysis of nursing students between group 1 and group 2

Item	Group 1 (N=20)		Group 2 (N=20)		U	p
	Mean Rank	Sum of Ranks	Mean Rank	Sum of Ranks		
1) Core competency - ethics and laws	12.25	98.00	4.75	38.00	2.00	.002
- professional characteristics	11.88	95.00	5.13	41.00	5.00	.016
- communication and language usage	11.63	93.00	5.38	43.00	7.00	.009
- interpersonal relationship	11.44	91.50	5.56	44.50	8.50	.013
- leadership and teamwork	11.44	91.50	5.56	44.50	8.50	.013
- self-adjustment	11.63	93.00	5.38	43.00	7.00	.009
- information technology and digital literacy	11.63	93.00	5.38	43.00	7.00	.009
2) Functional competency - professional knowledge	12.25	98.00	4.75	38.00	2.00	.002
- cognitive skills	11.63	93.00	5.38	43.00	7.00	.009
- research and innovation	11.88	95.00	5.13	41.00	5.00	.016
- nursing and midwifery practices	12.25	98.00	4.75	38.00	2.00	.002

Table3 : the evaluation of the professional competency evaluation model of nursing students

Item	Nursing teacher			Mentor teacher			Student			Classmate			Total		
	\bar{x}	S.D.	Level	\bar{x}	S.D.	Level	\bar{x}	S.D.	Level	\bar{x}	S.D.	Level	\bar{x}	S.D.	Level
feasibility	3.93	0.42	Good	3.73	0.59	Good	3.90	0.44	Good	4.07	0.40	Good	3.91	0.46	Good
appropriateness	4.08	0.53	Good	3.80	0.57	Good	3.88	0.61	Good	4.07	0.55	Good	3.96	0.57	Good
accuracy	4.02	0.44	Good	3.78	0.54	Good	3.93	0.44	Good	4.09	0.39	Good	3.95	0.45	Good
usefulness	4.10	0.57	Good	3.90	0.74	Good	4.00	0.47	Good	4.50	0.53	Good	4.10	0.57	Good
Total	4.04	0.48	Good	3.79	0.57	Good	3.91	0.50	Good	4.09	0.45	Good	3.96	0.50	Good

Discussions

The discussions covered 4 key issues related to the research results as follows:

1. The results of the elements and the indicators of nursing students.

1)The core competency with 7 elements were as follows:

- Ethics and the Code of Ethics and Laws: It indicated respect for individual rights, respect for others, awareness of legal responsibility, and maintaining professional standards.⁸

-Professional Characteristics : It indicated conduct of good professional personality, a role model of health, appropriate behavior to persons and situations, professional development for advancement and dignity.⁹

-Communication and Language Usage : It indicated the ability to use language skills such as speaking, reading, and writing for effective communication, and promoting to happy and successful collaboration.¹⁰

- Interpersonal Relationship : It was concerned with building positive and constructive relationships with others, expressing opinions logically, and managing emotion appropriately.¹¹

- Leadership and Teamwork : It was concerned with cooperation, building relationships with others to support learning and to enhance relationships, and helping and supporting others to reach a common goal of success.¹²

- Self-adjustment : It represented the ability to adapt to different situations both personally and as a group and building relationships effectively.¹³

- Information Technology and Digital Literacy : It revealed the ability to use computer technology to search for health information and related knowledge and to use information technology to present academic works effectively and ethically.¹⁴

1.2 The functional competency with 4 elements were as follows:

- Professional Knowledge : It concluded that nursing students with a good command of nursing knowledge may lead to suitable problem solution and plans for effective and safe patient care.¹⁵

- Cognitive Skills : It represented the ability to apply knowledge, experience, and decision to situations or problems using a systematic connection of new ideas to achieve goals effectively.¹⁶

-Research and Innovation : It indicated the ability to apply research findings or conduct research for self-development, to consider correctness and appropriateness of research related to study and to

comply with researcher's ethics.⁹

- Nursing and Midwifery Practicum : It indicated the ability to practice nursing and midwifery for safety and satisfaction of service recipients under laws and professional ethics in both simulations and real situations.¹⁷

2. The results of the construction of the professional competency evaluation model of nursing students.

The objective : This was set as the first element of this evaluation model as it would provide a clearer direction for the whole evaluation to guide the development and improvement and items of evaluation.¹⁸

The items : It covered behavioral attributes derived from knowledge, skills, motivation, individual attributes, and self-concept. It belonged to the core competency and the functional competency.¹⁹

Evaluators : In evaluating the professional competency of the nursing students, there were different parties of evaluators including the nursing teachers, the mentor, and the students, and to make it more reliable.²⁰

Indicators and criteria : Prior to the evaluation, the indicators and criteria were specified to provide the evaluators with guidelines so that they could perform the evaluation in accordance with the indicators and criteria. Also, the indicators and criteria were used as guidelines for self-development and performance improvement.²¹

The methods: It included observation, interview, and review of documents. The main instrument for data collection was the 5-rating scale evaluation form. It should measure real conditions.¹⁸

The period : The core competency was evaluated once a semester whereas the functional competency was evaluated once an academic year. This was to monitor and reflect the student behavior on a regular basis for effective improvement.²²

Provision of feedback: It provided feedback in 2 dimensions with 4 notification patterns; individual results of evaluation, overall results of evaluation, good results of evaluation, and weak results of evaluation. It was a factor that reflected and modified the student behavior effectively.²³

3. The results of the implementation of the professional competency evaluation model of the nursing students.

The result revealed that group 1 and group 2 of the 1st- 4th year nursing students had differences in the professional competency at a statistically significant level of .05. This indicated that the evaluation model had a certain discriminant validity as it could distinguish different professional competencies of the nursing students. This was consistent with Boonchom S²⁴., proposing that after a model is developed, its validity is tested. Even though the newly developed model is invented on theories, concepts, models, and past research findings, it is just a hypothetical model that needs to be implemented in both experimental and real situations. The testing results will help decide whether or not the developed model is appropriate or effective as intended.

4. The results of the evaluation of the professional competency evaluation model of nursing students.

The scope of the evaluation covered the 4 elements; feasibility, appropriateness, accuracy, and usefulness. It was found that all these elements were rated at a high level of standard. This finding may be due to the fact that the evaluators agreed that the evaluation was interesting. The evaluation model was developed through a process systematically. The evaluation varied in the methods, the instruments, and the sources of the evaluators. This resulted in the reliability of the model and those involved in the evaluation were satisfied and able to utilize the evaluation model. This finding was consistent with Rattana B.²⁰ stating that an evaluation model development process comprises 4 stages : investigating and synthesizing problems and needs for development, specifying and examining quality which requires experts from specific fields, implementing in the target groups, and evaluating results for further improvement., and accuracy was found.

Conclusion

The professional competency evaluation model of the nursing students in this research had a conceptual framework based on the stakeholder-based approach. For this reason, educational institutions should carefully consider further parties of evaluators to conduct the

evaluation. In so doing, accurate information will be obtained. To succeed in conducting such a professional competency evaluation model, educational institutions should educate personnel responsible for evaluation and stakeholders about evaluation knowledge and skills, data collection and analysis, interpretation, summary and report of evaluation results.

Conflict of Interest: Nil.

Source of Funding: Self.

Ethical Clearance: This study was identified as exempt from Rajabhat Mahasarakham University and Rajabhat Chiyaphum University ,Thailand, Review Board.

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Knowledge Regarding Osteoporosis among Young Adult Women of a Selected Community of Pokhara, Kaski

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Abstract

Background: Osteoporosis is a silent killer disease that is highly prevalent among females. Even though the symptoms of osteoporosis can be identified in later stages of life, it can be prevented with a healthy lifestyle adaptation at an early stage of life.

Objectives: The present study aims to assess the knowledge level of osteoporosis among young adult females and examine the association between knowledge level and selected socio-demographic variables.

Methodology: A quantitative descriptive cross-sectional study design was used. A non-probability purposive sampling technique was used to select 153 samples. The data were collected for 6 weeks using a semi-structured interview schedule. Osteoporosis Knowledge assessment tool (OKAT) was used to collect the data. Descriptive statistics (frequency, percentage, mean, standard deviation) was used for quantitative data analysis and inferential statistics (chi-square) were used to find out the association between knowledge level and selected socio-demographic characteristics of the respondents.

Results: The study concluded that 51 percent of the young adult women had an average level of knowledge and 49 percent had a poor level of knowledge regarding osteoporosis. However, none of them had a good level of knowledge regarding osteoporosis. A significant association was found between the knowledge level and educational status of the respondents ($p=0.002$).

Keywords: Knowledge, osteoporosis, young adult women

Introduction

Osteoporosis is a progressive disorder of the skeletal system characterized by bone fragility and caused by the decrease in bone mineral density¹. Osteoporosis has clinically been defined as a condition where bone mineral density measures 2.5 standard deviations or more below the peak bone mass as measured by dual-energy X-ray absorptiometry. Osteoporosis is contributed by several factors such as low intake of calcium in the diet, smoking, sedentary lifestyle, female sex, Asians and Caucasians race, advancing age, menopause before 45 years, family history, multiparity, and prolonged lactation². Females are at higher risk of having osteoporosis than males as females have smaller bones³.

The prevalence and incidence of osteoporosis vary worldwide affecting millions of people around the world. The reported prevalence of osteoporosis among women was 9% in the UK, 15% in France and Germany, 16% in the USA, and 38% in Japan. Though osteoporosis is common among women, men are also affected by osteoporosis. However, the reported prevalence of osteoporosis among men worldwide is much less as compared to women⁴. Osteoporosis is a chronic bone disease prevalent in many Asian countries as well. The prevalence is higher in the aged population and females following menopause. About 13% to 18% of women aged 50-year-old and above have osteoporosis, and the numbers rise to 70% of people who are above 80-year-old⁵. Reported prevalence of osteoporosis among post menopausal women in Nepal ranged from 15 % to 26.2%⁶.

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Osteoporosis is a preventable disease with almost no clinical features except for the fracture. It is a “silent killer” as people suffering from it are unaware that they have the condition until they experience a fracture. Worldwide, osteoporosis causes more than 8.9 million fractures annually, resulting in an osteoporotic fracture every 3 seconds. Osteoporosis-related fractures are a major economic concern in many developed as well as less developed countries⁷.

Knowledge, attitude, and practice of adolescents and young adults towards osteoporosis are important to understand as bone health of them as well as their elderly family members can be improved only with adequate knowledge. A systematic review of 34 articles conducted in 2015 on osteoporosis where 16 articles assessed knowledge level on osteoporosis, only four studies revealed a good level of knowledge regarding osteoporosis among adolescents and young adults⁸.

Osteoporosis is a preventable disease so it is necessary to assess existing health beliefs and knowledge on osteoporosis in the general population whereby the findings might help to plan adequate strategies to increase awareness and to combat this disease. Assessment of awareness level of the young adult women and working towards reducing the identified gaps in knowledge helps to promote knowledge and better health-seeking behavior. However, in Nepal, limited studies have been conducted to assess knowledge on osteoporosis among young adult women though some studies have been conducted among postmenopausal women. So this study was done to assess the awareness regarding osteoporosis among young adult women.

Methodology

Study Design, setting and population

A community-based cross-sectional study design was used. The study was conducted among young adult women of Birauta 17, Pokhara. Pokhara is a metropolitan city of Nepal and Birauta is located in the Eastern part of Pokhara. The study population included the young adult women aged 20 to 39 years of Birauta-17 of Pokhara, Kaski

Sample size and sample technique

The sample size was calculated using Cochran’s formula and 153 young adult women were selected as samples from the accessible population. A non-probability purposive sampling technique was used to select the sample.

Data Collection Instrument

A semi-structured interview schedule was used for data collection. The first part of the questionnaire consisted of questions related to socio-demographic characteristics like age, ethnicity, occupation, religion, educational status, economic status, and marital status of the respondents.

While the second part of the questionnaire consisted of questions to assess the knowledge level of osteoporosis. Osteoporosis Knowledge Assessment Tool (OKAT) was used to assess the knowledge level of osteoporosis among young adult women. OKAT is a 20 item instrument with true, false and don’t know responses, based on the Osteoporosis Australia Osteoporosis Prevention and Self-management course and the information leaflet “Understanding Osteoporosis”. The score ranges from 1 to 20⁹. Formal permission to use the tool was obtained via mail from the OKAT developers.

Data Collection Procedure

After obtaining the ethical clearance from the Institutional review committee of Gandaki Medical College (GMC-IRC), the data were collected for 6 weeks. Formal permission was also obtained from the ward office of Birauta, Pokhara. After obtaining informed consent from the respondents, a semi-structured interview schedule was used to collect the data. Considering the valuable time of the respondents, data were collected during the daytime to ensure that respondents had enough time to answer the questionnaire. An average time spent on interviewing one respondent was approximately 15 to 20 minutes.

Data Analysis Procedure

Data were analyzed and interpreted according to the objectives of the study and research questions. Both descriptive and inferential statistics were used

to analyze the data. Descriptive statistics (mean, frequency, percentage, and standard deviation) were used to describe the socio-demographic characteristics. Inferential statistics (Chi-square) were used to find out the association between knowledge level and selected socio-demographic characteristics of the respondents.

The obtained data was edited and coded. Data were entered into the computer using the software Epi-data version 3.1 and transferred into Statistical Package for Social Science (SPSS-16 version) for further analysis.

Ethical Consideration

A written ethical clearance was obtained from the Institutional Review Committee of Gandaki Medical College (GMC-IRC). A formal letter of cooperation was written to the Ward office of Birauta, Pokhara. After the provision of sufficient information about the purpose of the study, verbal and written consent was obtained from all study participants. Participants were also informed that participation was voluntary and they can withdraw from the study at any time if they are not comfortable with the questionnaire. To ensure the confidentiality of respondents, their names were not written on the questionnaire

Results

Socio-demographic characteristics of young adult women

The response rate of the study was 100 percent. More than half (57.5%) of the respondents were aged 26 years and above, with a mean age of 26.9. The majority (88.1%) of the respondents were Hindus, and more than half (51%) of them were married. Almost half (46.4%) of the respondents belonged to the upper caste group. About 99.3 percent of the respondents were literate, and more than half (54.9%) had completed a Bachelor's degree. Regarding occupation, about 56.9 percent were unemployed, and among the employed, 15 percent were

involved in some services. Almost half (49.7%) of the respondents had a lower medium income. **Figure 1**

Level of Knowledge regarding osteoporosis among young adult women

Item analysis was made to determine which items were answered correctly by more respondents and which items were answered correctly by fewer respondents. The five items which were answered correctly by the respondents in descending order were (1) Osteoporosis leading to fracture (80.4%). (2) Osteoporosis concerning age (71.9%). (3) Broccoli as a source of calcium for vegetarians. (4) Family history as a predisposing factor of osteoporosis. (5) Cigarette smoking is a contributing factor to osteoporosis (62.7%). **Table 1**

The five items in descending order that the respondents failed to answer correctly were (1) Clinical risk factors and osteoporosis (2) Relation between osteoporosis and peak bone mass (34%). (3) The occurrence of symptoms before fracture in osteoporotic patients (21%). (4) Bone loss and menopause. (5) Milk as a source of calcium (11%). **Table 1**

Regarding the level of knowledge, more than half (51%) of the respondents had an average level of knowledge on osteoporosis. About half (49%) of the respondents had a good level of knowledge on osteoporosis. However, none of the respondents had a good level of knowledge of osteoporosis. **Figure 2**

Factors affecting the level of knowledge

The factors that may contribute to the knowledge level of respondents were also analyzed. The Chi-square test revealed a significant association between the level of knowledge and educational status of the respondents ($\chi^2 = 9.614, p = 0.002$). However age, occupational status, family income, and marital status had no significant association with the level of knowledge of the respondents. **Table 2**

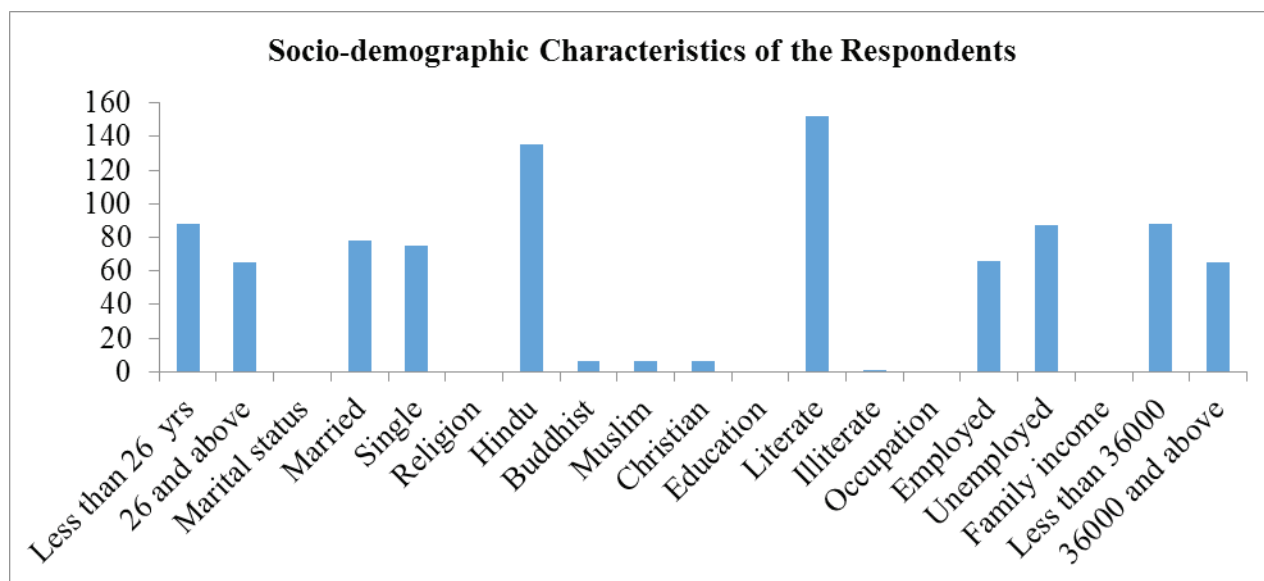


Figure 1: Socio- demographic Characteristics of the Respondents

Table 1: Frequency and percentage of correctly answered questions by respondents (N=153)

Item no.	Item content True, False, Don't Know questions	Correct response	
		N	%
1	Osteoporosis leads to an increased risk of bone fractures (True)	123	80.4
2	Osteoporosis usually causes symptoms (e.g. pain) before fractures occur (False)	21	13.7
3	Having a higher peak bone mass at the end of childhood gives no protection against the development of osteoporosis in later life (False)	34	22.2
4	Osteoporosis is more common in men (False)	72	47.1
5	Cigarette smoking can contribute to osteoporosis (True)	96	62.7
6	White women are at highest risk of fracture as compared to other races. (True)	51	33.3
7	A fall is just as important as low bone strength in causing fractures (True)	92	60.1
8	By age 80, the majority of women have osteoporosis (True)	110	71.9
9	From age 50, most women can expect at least one fracture before they die (True)	66	43.1
10	Any type of physical activity is beneficial for osteoporosis (False)	39	25.5
11	It is easy to tell whether I am at risk of osteoporosis by my clinical risk factors (False)	35	22.9

Cont ... Table 1: Frequency and percentage of correctly answered questions by respondents (N=153)

12	Family history of osteoporosis strongly predisposes a person to osteoporosis (True)	97	63.4
13	An adequate calcium intake can be achieved from two glasses of milk a day (False)	11	7.2
14	Sardines and broccoli are good sources of calcium for people who cannot take dairy products (True)	101	66.0
15	Calcium supplements alone can prevent bone loss (False)	74	48.4
16	Alcohol in moderation has little effect on osteoporosis (True)	84	54.9
17	A high salt intake is a risk factor for osteoporosis (True)	66	43.1
18	There is a small amount of bone loss in the ten years following the onset of menopause (False)	16	10.5
19	Hormone therapy prevents further bone loss at any age after menopause. (True)	89	58.2
20	There are no effective treatments for osteoporosis (False)	69	45.1

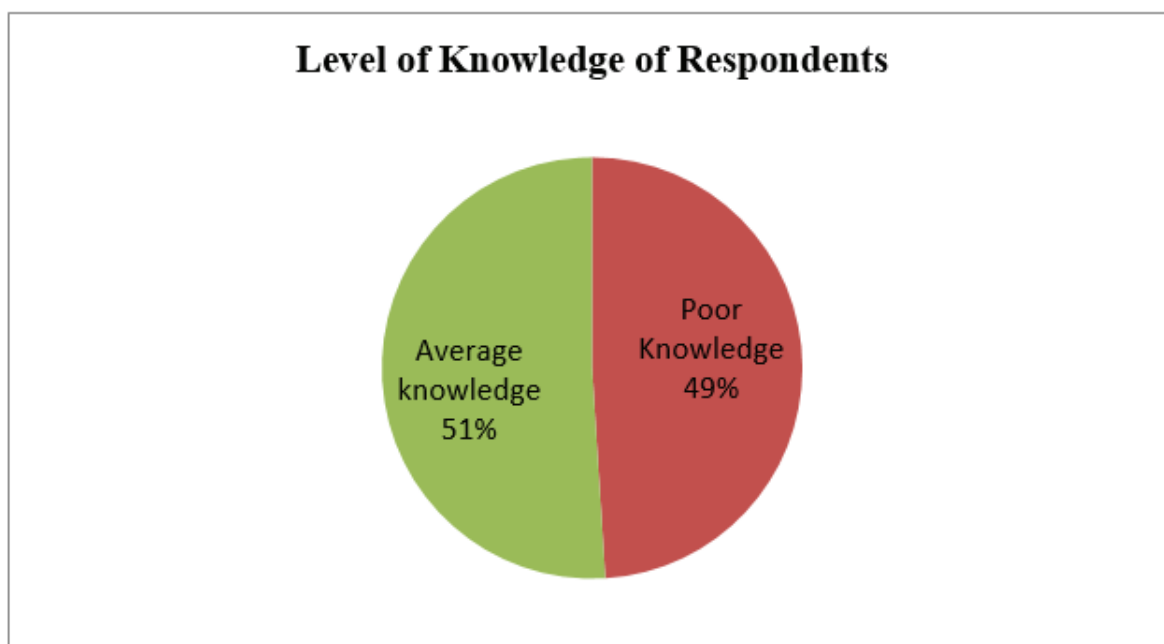


Figure 2: Level of knowledge on Osteoporosis

Table 2: Association between level of knowledge and selected socio-demographic characteristics of the respondents

Characteristics	Knowledge Level		χ^2	p-value
	Poor n (%)	Average n (%)		
Age in Years <26 years ≥ 26 years	38 37	50 28	2.85	0.093
Marital Status Single Married	31 44	44 34	3.478	.062
Family Income <36000 >36000	41 34	47 31	0.489	.484
Education Status Below Bachelors Bachelors and above	37 37	20 58	9.614	.002*
Occupation Status Employed Unemployed	35 40	31 47	0.747	0.387

* *p* value significant at < .05 χ^2 =Chi-square CI= Confidence Interval

Discussion

The present study shows that about half of the respondents have an average knowledge on osteoporosis and half have poor knowledge. The study findings are consistent with the study conducted among Turkish women who had an inadequate knowledge of osteoporosis¹⁰. The study findings are also similar with the study done by Alshareef et al³ which revealed that young Saudi female college students do not have sufficient amount of knowledge about osteoporosis. The study findings are also in line with another study done in El Salvador which revealed that the majority of women in this study have modest knowledge on osteoporosis¹¹.

The current study shows that level of education have significant association with education status. The study findings are consistent with the other study conducted by Mehmood Riaz which revealed that educated young adult women had more knowledge on osteoporosis¹². The study findings are also similar

to another study which revealed that educated women showed a significantly higher level of knowledge about osteoporosis prevention¹³. Another Study conducted by Roberto Hernandez-Rauda indicated that better educated women had more knowledge about osteoporosis than women with a low education level, regardless of age.

The current study shows no association between levels of knowledge with age, occupation, income. In contrary study conducted by Alamri et al showed there were significant associations between the level of awareness on osteoporosis and age, education, occupation, income ($P<0.01$)¹⁴.

Conclusion and Recommendation

The study concluded that young adult women had average level of knowledge regarding osteoporosis. A significant association was found between knowledge level and educational status of the respondents.

The results of the study can provide a framework for the policymakers to develop and implement educational programs on osteoporosis for the young adult women at community level. As osteoporosis is a preventable disease, educational interventions on osteoporosis can enhance the quality of life of young adult women.

Limitations of the study

The study was conducted in a single community and might not reflect the characteristics of young adult women in general. This might limit the generalizability of the findings of the study. Also as this study is a cross sectional study, chances of recall bias may be high.

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Conflict of Interest: Nil

Ethical Considerations: The study has been approved by Institutional Review Committee of Gandaki Medical College (GMC-IRC) of Nepal. Written informed consent has also been obtained from the research participants.

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The Distribution Pattern of Covid-19 in Indonesia: Study Using Spatial Autocorrelation

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Abstract

COVID-19 is an infectious disease caused by the coronavirus, SARS-CoV-2. The spread of several types of diseases, including COVID-19, is influenced by location or spatial factor. The purpose of this research was to examine the spatial relationship among the spread of COVID-19 in Indonesia. Secondary data is used from the Indonesian Ministry of Health website. The data analyzed was the cumulative number of positive cases of COVID-19 in Indonesia until October 19th, 2020. Spatial Autocorrelation, Moran's Index, and Local indicators of spatial association (LISA) were used to examine these relationships. Geoda software was used in performing spatial statistical analysis. The spread of the cumulative number of COVID-19 cases in Indonesia is spatially related, with a Moran's Index value of 0.251. Four provinces have significant LISA scores, namely South Sumatra, Banten, West Java, and South Sulawesi. South Sumatra is relatively safe since it is located in the an area with relatively low COVID-19 cases. West Java is perilouse with high COVID-19 cases and surrounded by an area with a high number of cases. Banten needs to be vigilant of the high number of cases' possibility since the surrounded area can be the main influence. South Sulawesi has a very high number of COVID-19 cases, which can be the new source of infection for the surrounding areas. The Indonesian government needs to act on a regulation in order to decrease COVID-19 distribution by limiting people's commute between provinces.

Keywords: COVID-19, Moran's Index, Local indicator of spatial association

Introduction

Since December 2019, COVID-19 has occurred in Wuhan, and in a short time, has spread throughout China⁽¹⁾. COVID-19 is an infectious disease caused by the coronavirus, SARS-CoV-2, a respiratory pathogen⁽²⁾. On March 2, 2020, two Indonesian citizens (who live in Depok) were declared positive for the SARS Cov-2 virus. This case was the first case found in Indonesia. The two people with COVID-19 had interacted with Japanese citizens known to have suffered from the

disease beforehand⁽³⁾. The number of COVID-19 cases has spread to almost all Indonesia regions consist of 34 provinces. At the end of March, the number of confirmed positive cases of COVID-19 in Indonesia reached to 1,528 cases. This figure increased to 26,473 at the end of May, 108,403 at the end of July and 287,035 at the end of September⁽⁴⁾.

The distribution of several types of diseases is influenced by location or spatial factor. Disease modeling and mapping can assist in disease management through the early detection of high-risk areas. The statistical analysis used is referred to as spatial statistics, which is spatial autocorrelation⁽⁵⁾. Spatial autocorrelation can measure the tendency of spatial grouping relationships. There are two indexes commonly used in spatial

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autocorrelation, namely Moran's Index and Local Indicators of Spatial Association (LISA). Moran's Index describes spatial relationships globally. The Moran Index cannot provide information on spatial patterns in a particular area. Therefore, LISA is needed; a local index is used to evaluate local spatial grouping trends^{(5); (6)}.

Several diseases were analyzed using spatial autocorrelation, including dengue fever⁽⁷⁾, leprosy⁽⁸⁾, tuberculosis disease⁽⁹⁾. Several studies about the distribution of COVID-19 also utilizing spatial autocorrelation. Research on the spatial modeling of COVID-19 had been carried out in Yogyakarta, Indonesia⁽¹⁰⁾, and the spread of COVID-19 in Indonesia in April 2020⁽¹¹⁾. Research on the distribution of COVID-19 with spatial statistics has also been carried out in several other countries, including China⁽¹²⁾, Kuwait⁽¹³⁾, South Korea⁽¹⁴⁾, Bangladesh⁽¹⁵⁾. Modeling and mapping is a spatial statistical approach used to take policies and actions to reduce disease spread.

Based on the description above, this study aimed to examine the spatial relationship of the spread of COVID-19 in Indonesia. In addition, the relationship between the distribution of COVID-19 in a province in Indonesia was also examined in this study.

Materials and Methods

This study uses secondary data obtained from the *Satuan Tugas* COVID-19 (Satgas COVID-19) of the Indonesian Ministry of Health website⁽⁴⁾. The data used in this study was the cumulative number of cases in each province in Indonesia. Indonesia is an archipelago country consists of 34 provinces with different characteristics. Provinces on Java island (Jakarta Capital Special Region, Banten, West Java, Yogyakarta Special Region, Central Java, East Java) are characterized by high population density and mobility. The data used in this article was the data until October 19th, 2020. In addition to data, Indonesia's map and the required attributes were also considered taken into account⁽¹⁶⁾.

The spatial statistics used in this study are spatial autocorrelation, Moran's Index, and LISA. Moran's Index is an index used to determine the presence or absence of a spatial relationship. Moran's Index only looks at the global connection; for this reason, LISA is

used, which can provide information on spatial patterns in certain areas. Geoda software was used to perform spatial statistics Moran's Index, then calculated using a formula:

$$I = \frac{\sum_{i=1}^n \sum_{j=1}^n w_{ij} (x_i - \bar{x})(x_j - \bar{x})}{\sum_{i=1}^n (x_i - \bar{x})^2}$$

Where:

x = the data to be calculated is the index value of moran, x_i and x_j , where $i \neq j$

n = sum of data

w_{ij} = spatial weighting

$i = 1, 2, \dots, n$

$j = 1, 2, \dots, n$

$$I_i = \frac{z_i}{m_2} \sum_{j=1}^n w_{ij} z_j \text{ using a formula:}$$

Where:

$$z_i = (x_i - \bar{x})$$

$$m_2 = \sum_{i=1}^n \frac{(x_i - \bar{x})^2}{n - 1}$$

Results and Discussion

Covid-19 has spread to all provinces in Indonesia. The distribution of positive cumulative cases of Covid-19 until October 19th 2020 has not been evenly distributed. Provinces with a very high number of cumulative cases were Riau, North Sumatra, West Java, the Special Capital Region of Jakarta, Central Java, East Java, East Kalimantan, and South Sulawesi. Provinces with a high cumulative number of cases included Aceh, West Sumatra, South Sumatra, Banten, Bali, South Kalimantan, Southeast Sulawesi, North Sulawesi, and Papua. Provinces with a moderate cumulative number of cases included Riau Islands, Yogyakarta Special Region, West Kalimantan, Central Kalimantan, West Nusa Tenggara, Gorontalo, Maluku, North Maluku, and West Papua. Provinces with a low cumulative number of cases include Lampung, Jambi, Bangka Belitung, North Kalimantan, Central Sulawesi, West Sulawesi, and East Nusa Tenggara.

From the total 364,915 COVID-19 positive cases, it turned out that 288,965 (79.2%) could be cured. East Java had very high cumulative cases, but the proportion/the cure rate was also very high. Other provinces with a very high cure rate were Bangka Belitung, Bali, West Kalimantan, South Kalimantan, North Kalimantan, Gorontalo, and North Maluku. Provinces with low cure rates are Riau, West Sumatra, Jambi, Lampung, West Java, Papua, Central Sulawesi, and Southeast Sulawesi.

Of the 364,915 positive cases of COVID-19, 12,612 (3.456%) had died. Provinces with very high mortality rates are North Sumatra, South Sumatra, Bengkulu, Central Java, East Java, East Nusa Tenggara, South Kalimantan, and Central Sulawesi. Provinces that have good mortality rates, which are quite low, are Bangka Belitung, West Kalimantan, North Kalimantan, East Nusa Tenggara, West Sulawesi Papua, West Papua, and Maluku. Figure 3 shows in more detail an illustration of the patients' proportion who died from COVID-19.

Moran's Index

Moran's Index value of 0.251 is statistically

significant. It was obtained a Z value of 2.1769 and a p-value of 0.044; if an α value of 5% is used, then the p-value is smaller than the α value, which means there is a spatial relationship in the spread of COVID-19 in Indonesia. In the spread of COVID-19, there is a positive spatial autocorrelation; this is indicated by the E [I] value of -0.0345, smaller than the Moran's Index value (0.251). The Moran's Index value is 0.251, indicating that the distribution of COVID-19 has a significant relationship with regions, but the relationship is not too strong. These results were the same as the research results on the spread of COVID-19 in Indonesia using data on the number of cumulative cases of COVID-19 until April 29th, 2020, with the earned value Moran's Index 0.269 ($p=0.0004$)⁽¹²⁾. This result showed the use of the Moran's Index value Index was relatively stable, even though the analyzed data was different in time. The spread of COVID-19 in Hubei, China, was also spatially related⁽¹³⁾. The cumulative number of confirmed COVID-19 cases in South Korea had a strong spatial autocorrelation with a Moran's Index value of 0.784 ($p = 0.0001$). Moran's Index Overview, Figure 1 shows the Moran Scatterplot of the cumulative number of confirmed COVID-19 cases in Indonesia.

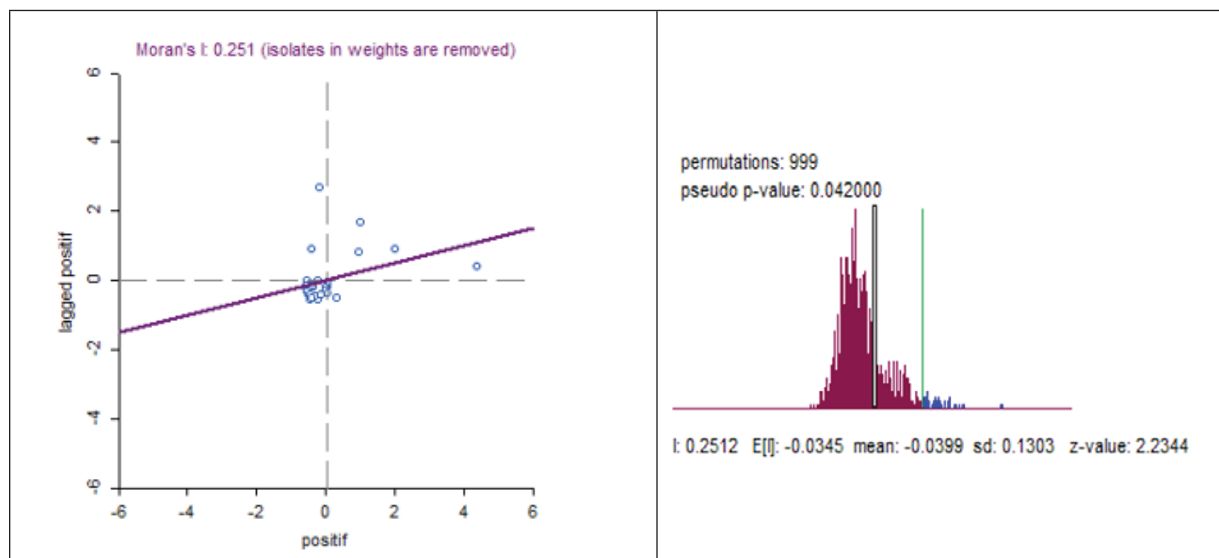


Figure 1. Moran's Scatterplot for The cumulative number of confirmed COVID-19-19 cases in Indonesia on October 19th, 2020

The distribution of provinces in Indonesia based on Moran's Index can be seen in the following table 1. Quadrant I (High-High) was the provinces with a high number of cumulative COVID-19 cases, and

the surrounding provinces also had a high cumulative number of COVID-19 cases. Quadrant II (Low-High) was the provinces with a low cumulative number of COVID-19 cases and the surrounding provinces with

high cumulative COVID-19 cases. Quadrant III (Low-Low) was the provinces with a low cumulative number of COVID-19 cases and the neighboring provinces with a low cumulative number of COVID-19 cases.

Quadrant IV (High-Low) was the provinces with a high cumulative number of COVID-19 cases, and the surrounding provinces with a low cumulative number of COVID-19 cases.

Table 1. Distribution of the cumulative number of confirmed COVID-19 cases in provinces in Indonesia based on the Moran Index (Moran Standart, Moran Lag)

<p style="text-align: center;">Quadrant II (Low-High)</p> <ol style="list-style-type: none"> 1. The Special Region of Aceh (-0.26,0.02) 2. The Special Region of Yogyakarta (-0.44,0.93) 3. Banten (-0.2,0.69) 4. North Kalimantan(-0.57,0.02) 	<p style="text-align: center;">Quadrant I (High-High)</p> <ol style="list-style-type: none"> 1. The Special Capital Region of Jakarta (4.38,0.40) 2. West Java(1.00,1.70) 3. Central Java (0.93,0.84) 4. East Java (1.97,0.93)
<p style="text-align: center;">Quadrant III (Low-Low)</p> <ol style="list-style-type: none"> 1. West Sumatra(-0.02,-0.27) 2. South Sumatra (-0.23,-0.55) 3. Bengkulu (-0.56,-0.34) 4. Riau Islands (-0.46,-0.56) 5. Lampung (-0.54,0.40) 6. Jambi (-0.56,-0.25) 7. South Kalimantan (-0.01,-0.19) 8. West Kalimantan(-0.54,0.19) 9. Central Kalimantan(-0.39,-0.18) 10. Southeast Sulawesi(-0.39,-0.13) 11. North Sulawesi (-0.35,-0.45) 12. West Sulawesi(-0.56,-0.13) 13. Central Sulawesi 14. Gorontalo(-0.45, -0.46) 15. North Maluku(-0.5,-0.42) 16. Maluku(-0.42,-0.5) 17. Papua(-0.18,-0.42) 18. West Papua(-0.42,-0.18) 	<p style="text-align: center;">Quadrant IV (High-Low)</p> <ol style="list-style-type: none"> 1. Riau (0.01,-0.19) 2. North Sumatra (0.02,-0.09) 3. South Sulawesi (0.31,-0.51) 4. East Kalimantan (0.02,-0.38)

It can be seen that provinces in Java Island were clustered in Quadrant I, which consisted of provinces with a high cumulative number of COVID-19 cases followed by high risk from the surrounding areas. This finding was different from the previous research which illustrated the situation on April 29th, 2020 where the high-risked provinces were West Java, Jakarta Special Capital Region, Gorontalo, and South Sulawesi⁽¹¹⁾. The density of the population and high mobility allowed COVID-19 to spread quickly. A recent study found a correlation between population mobility (in and out

town) and the spread of COVID-19-19 in Jakarta. Based on population mobility data, people entering Jakarta mostly from West Java, Banten, and Central Java⁽¹⁷⁾.

Local Indicator of Spatial Association (LISA)

LISA is a local index used to evaluate the tendency of local spatial groupings. From the 30 provinces analyzed, only four provinces had significant LISA scores. The LISA Index values for four significant provinces are as follows presented in Table 2.

Table 2. LISA Index of Significant cumulative number of confirmed COVID-19-19 cases in Indonesia on October 19, 2020

Province	LISA Index	p-value
West Java	1.7026	0.017
Banten	-0.5364	0.014
South Sumatra	0.1297	0.003
South Sulawesi	-0.1596	0.041

Table 2 result shows that some of the LISA indices have p-values smaller than α , which means a significant spatial relationship in certain areas. It can be concluded that the spread of COVID-19 in Indonesia is related to spatially, locally, and forming clusters. Research in Dhaka city found that the spread of COVID-19 has also significantly formed clusters ⁽¹⁵⁾.

In Quadrant I (High-high), West Java was the province that had a significant LISA Index, with an index value of 1.7026 and a p-value of 0.017. The risk of spreading COVID-19 in West Java was perilous. West Java has a very high number of COVID-19 cases, and the provinces around West Java have a very high number of COVID-19 cases, namely The Special Capital Region of Jakarta, East Java, and Central Java.

In Quadrant II (Low-high), Banten had a significant LISA Index, with an index value of -0.5364 and a p-value of 0.014. The cumulative number of COVID-19 cases in Banten is relatively low. However, Banten should be vigilant because COVID-19 cases may become very high in Banten due to the surrounding provinces' influence. This result was because Banten is located around the provinces with many COVID-19 cases, namely DKI Jakarta and West Java.

In Quadrant III (Low-low), North Sumatra had a significant LISA Index, with an index value of 0.1297 and a p-value of 0.003. South Sumatra was safe since South Sumatra had low number of COVID-19 cases and is located around provinces with relatively low numbers of COVID-19 cases (Jambi, Bengkulu and Lampung).

In Quadrant IV (High-low), South Sulawesi had a significant LISA Index, with an index value of -0.1596 and a p-value of 0.041. South Sulawesi Province had a relatively high number of COVID-19 cases. Since South Sulawesi had many COVID-19 cases, the surrounding provinces, namely West Sulawesi, Central Sulawesi, and Southeast Sulawesi had to be cautious. South Sulawesi could be a source of new COVID-19 infections in its region.

The analysis identified several provinces that must be alert to the risk of spreading COVID-19 due to the other provinces surrounding it. Between the nearby provinces, there is a high possibility of population

mobilization. At the same time, community mobilization is one indicator of COVID-19 infections⁽¹⁸⁾. Therefore, it is necessary to have regulations limiting people's mobility and commute both between cities and between provinces.

Conclusions

The spread of the cumulative number of COVID-19 cases in Indonesia is spatially related, with a Moran's Index value of 0.251. Four provinces had a significant LISA index, namely, West Java with a LISA index of 1.7026, Banten with a LISA index of -0.5364, South Sumatra with a LISA index 0.1297, and South Sulawesi with a LISA index of -0.1596.

South Sumatra Province was safe with a relatively low number of COVID-19 cases. Banten should be alert; COVID-19 cases may become very high because of the surrounding provinces' influence. West Java was perilous, the number of COVID-19 cases was very high, and the provinces around West Java had a very high number of COVID-19 cases as well. South Sulawesi had a very high number of COVID-19 cases, which could be a source of new COVID-19 infections for the surrounding areas.

The magnitude of COVID-19 spread influence in a province towards the surrounding provinces should be taken into consideration in regulations making to solve COVID-19 pandemic situation. People's mobility and commute limitation between provinces might need to be applied with full attention to the socio-economic condition of the local citizens.

Ethical Clearance: The study was based on data available in public domain, therefore no ethical issue is involved.

Conflict of Interest: There were no conflicts of interest to declare.

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Utilization of Research Evidences among Nursing Students-A Multicentred Study in India

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Abstract

Background-Nursing services in present era thrives for quality patient care. To maintain the standard of professional practice and best quality care the student nurses need to be updated with recent research evidences. Evidence Based Practice (EBP) in nursing education is inevitable to keep up the pace with the technological advancement and standard nursing practices.

Objectives-The present study was designed with the objective to assess the level of utilization of research evidences among nursing students, to find the association of selected variables with the S-EBPQ scores, to compare the mean score of S-EBPQ among the different groups of nursing students and to analyse the low response items(score1-2) of SEBPQ.

Methodology-The present study is a multi-centred cross-sectional descriptive design conducted among nursing students(n=276) of selected College of Nursing of India through an online survey. Data collection tool was a standardised self-administered questionnaire of SEBPQ (Students Evidence Based Practice Questionnaire by P Upton, D R Upton & S Evans,2015) consisting of 21 items in four subscales. Statistical analysis was done by SPSS-24 software in the form of mean, standard deviation, frequency, percentage and ANOVA test.

Result-Present study revealed that the total mean score of SEBPQ was 3.89±1.22, practice score was 3.35±1.53,attitude score was 4.41±1.78, knowledge/skill score was 3.77±1.35 and communication of research score was 4.06±1.48.The utilization of research evidences were high among 31.52% nursing students, moderate among 54.35% and low among 14.13% of nursing students. The negative response analysis for all items revealed that the student nurses had lower utilization of evidences related to lack of critically appraising the evidences (48.2%), tracking down the evidences (45.28%), integrating the evidences with practice (44.6%) and difficulty in formulating clearly answerable research question (41%). There was a statistically significant association between the S-EBPQ score and the place of residence (p value of 0.00018) however there was no association found for the age, education level, marital status, years of experience, speciality and designation of nursing students.

Conclusion-The study concluded that the nursing students have moderately high utilization of EBP, positive attitude towards research utilization and communication, however institutional support and revised nursing curriculum with emphasis on EBP would be necessary to make nursing students more research oriented and updated.

Key Words: EBP, Nursing Students, S-EBPQ

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Introduction

Nursing profession has evolved in a great way globally. The traditional role of a nurse as a physician's

associate had a limited scope to explore, initiate, design or invent various patient care related services and challenge the set practices.¹ The EBP movement started in 1990s has promoted and supported to generate the various evidence, utilization of those evidences in clinical practice and filling the gap in knowledge through experimentation. The Profession of Nursing also encouraged the practitioners to adopt, generate and disseminate various research evidences which ultimately contributes to quality patient care.

The student nurses are the future of the profession of nursing. The right attitude and knowledge regarding EBP will encourage more recent and advanced nursing care practices which in turn directly attribute towards best patient care services and client satisfaction.² To inculcate the habit of reviewing recent evidences, research work and to challenge various contemporary practices various activities such as journal club, reviewing articles, research projects and workshops are organized across the country. Even after two decades of EBP movements it was realized that nursing practices are not able to create enough evidences to improve the practice and even though the evidences are there they are not communicated to the other members of the profession and thus remain underutilized.³ Various studies on EBP was conducted as KAP studies along with the barriers to EBP mostly focused on the clinical nursing practitioners. The focus of the present study was to assess the utilization of research evidences among the student nurses to identify the loopholes of EBP and to take measures to modify them.

The present study has the following objectives-

- (1) To identify the level of utilization of research evidences among nursing students of selected training institute of India.
- (2) To compare the mean value of S-EBPQ score among undergraduate, post basic and post-graduate nursing students.
- (3) To analyse the individual item response pattern of low performance category of SEBPQ score among nursing students.
- (4) To examine associations between specific demographic and professional variables with the

S-EBPQ score among nursing students.

Material & Methods

A descriptive cross-sectional study was conducted among undergraduate, post basic and post graduate nursing students of selected college of nursing of Pune, Delhi, Kolkata and Lucknow city. Prior conducting the study Institutional permission as well as individual consent to participate in the study was taken. It was an online survey administered through Google forms. The accessible population for the study was almost 1000 nursing students from various nursing institute. We received total 276 responses including all categories of nursing students.

Inclusion criteria:

1. Undergraduate nursing students of 3rd and 4th year of Nursing, PB BSc nursing students and Postgraduate nursing students
2. Nursing students who were aware about the concept of Evidence based practice.
3. Students who has the facility of smart phone and internet.

Data collection tool-

The tool of data collection was a standardized self-administered questionnaire-Student-Evident Based Practice Questionnaire (SEBPQ)⁴ designed by P Upton, D R Upton & S Evans, 2015 a modified version of EBPQ⁵ tool by Upton & Upton 2006. The permission to utilize the tool was taken from the author through email. Along with the data of EBPQ, relevant socio-demographic and work-related data were collected through a semi structured questionnaire.

The students Evidence Based practice Questionnaire is a standardized tool that contains utilization of research evidences in patient care (6 items), attitude towards utilization of research (3 items), Skills for retrieving and reviewing the Evidence (7 items) and Sharing and Applying EBP (5 items). Each item has maximum score of 7 and minimum score of 1. The total maximum score of SEBPQ is 147 and minimum score is 21. The researchers considered score of 21-49 as low utilization of research evidences, score of 50-97 as moderate

utilization of research evidences and 98-147 as high utilization of research evidences for the present study.

Sample size calculation & Sampling-

Accessible population was calculated as per the inclusion criteria, it was near 1000 nursing students of selected college of nursing. Calculated sample size was 278 nursing students considering 95% of confidence interval, 5% of margin of error and 50% of response distribution pattern. Purposive sampling was done and at the end of the study 276 samples were included for data analysis.

Tool for data analysis-The data was analysed by SPSS 24 version. The descriptive analysis of data was done by mean, standard deviation, percentage and frequency distribution table. The association of selected socio-demographic and work-related variables with the EBPQ utilisation score was done by one factor ANOVA test. The response pattern of item was analysed to assess the low performance area of tool to generate the information highlighting the areas for improving research utilization among nursing students. The score of 2 and below was considered as low performance score and a negative response for each item.

Results

Analysis of data done by SPSS 24 version and findings are displayed in tabular and graphical presentation. The details are mentioned below.

Table 1 exhibits the comparison of mean score of SEBPQ scale and subscales among different groups of nursing students.

Figure 1 illustrates the graphical representation of data related to the level of utilization of research evidences among nursing students

Response pattern analysis was done for each item of S-EBPQ scale. The response considered negative if the score is 1-2. Based on this response pattern a graph was created to highlight the areas of low performance or negative response so that a module may be generated focusing on these areas to improve utilization of EBP. The researchers have focused on the selected items with more than 30% (n=89) of negative response to be considered for further planning of EBP training and workshops to make the nursing students more research oriented and updated. Figure The association of selected socio-demographic as well as work related variables with S-EBPQ score was analysed by one factor ANOVA test

Table 2 display the F ration and level of significance among various groups of nursing students. There was a statistically significant association between the S-EBPQ score and the place of residence of the nursing students (0.000018) however there was no statistically significant association was found for the age, education level, marital status, years of experience and designation of nursing students

Table 1: Descriptive statistics of Mean scores and standard deviations of SEBPQ subscales by level of nursing education

Nursing Students	EBPQ subscales (mean ± SD)				Total SEBPQ (mean ± SD)
	Practice	Attitude	Skill	Communication	
UG Students	3.079±1.34	4.04±1.78	3.42±1.25	3.50±1.24	3.51±1.09
PB BSc Students	3.74±1.75	5.21±1.32	4.61±1.15	5.47±0.56	4.76±0.77
MSc Students	4.81±1.64	5.83±1.31	5.06±1.03	6.11±0.65	5.45±0.63

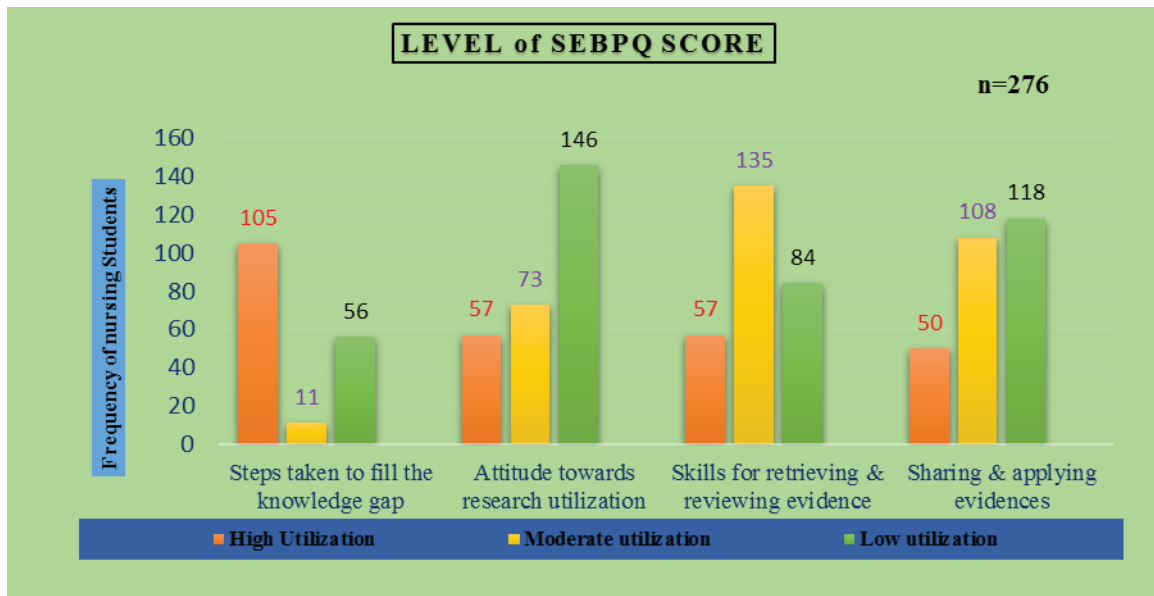


Figure 1: Bar Diagram- Distribution of Nursing Students as per the level of Utilization of EBP

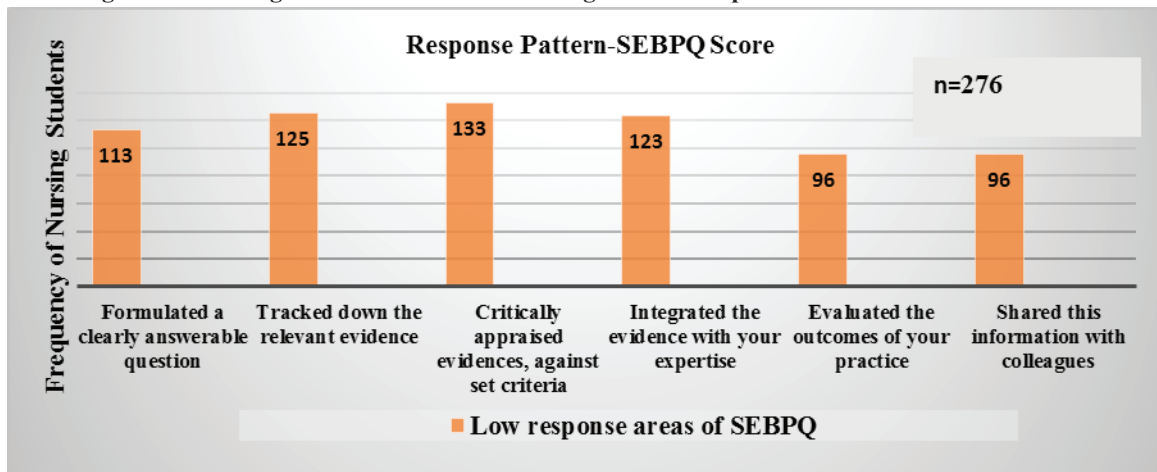


Figure 2: Distribution of Nursing students as per low response pattern in SEBPQ score

Table 2: Association of Selected Socio-demographic & work-related variable with SEBPQ score by ANOVA test

Socio-demographic & Work-related variables	n	SEBPQ score		F Value	P Value
		Mean	±SD		
Age (Years)					
<20	12	3.62	±1.494	0.506	0.679
20-30	231	3.88	± 1.562		
30-40	30	4.10	±0.639		
>40	03	3.90	±3.885		
Education Level					
UG Nursing Students	206	3.86	±1.622	0.439	0.645
PB BSc Nursing Students	44	3.96	±0.975		
MSc Nursing Students	26	4.08	±1.276		
Marital Status					

Cont... Table 2: Association of Selected Socio-demographic & work-related variable with SEBPQ score by ANOVA test

Unmarried	242	3.89± 1.553	0.129	0.878
Married	31	3.89± 1.004		
Divorced/Separated	3	4.25± 1.7343		
City of Present Residence				
Pune	168	4.13±1.334	8.59	0.000018
Lucknow	43	3.26±1.591		
Kolkata	34	4.01±1.170		
Delhi	31	3.37±1.469		
Years of Experience				
No experience	206	3.84± 1.617	1.931	0.105
<5 years	26	4.01± 1.613		
5-10 years	13	3.40± 0.652		
10-20 years	28	4.30± 0.683		
>20 years	3	4.82± 0.150		
Designation				
Trainee	209	3.85± 1.618	1.933	0.124
Senior sister	24	4.08± 0.909		
Ward sister	33	4.22± 0.804		
Matron	10	3.29± 1.774		

Discussion

The present study explored the utilization of research evidence among nursing students, comparison of mean score of SEBPQ among different group of nursing students, response pattern analysis of items for negative response and the association of SEBPQ score with socio-demographic and work-related variables. The study was conducted among female nursing students pursuing undergraduate, post-basic and post graduate nursing courses from selected college of nursing of India. The study revealed

that most of the sample were graduate nurses (74.64%), unmarried (81.88%) and within the age group of 20-30(84.05%) years. Most of them were in general nursing practice (89.13%) followed by the psychiatric nursing (4.35%). Most of them were residence of Pune city followed by Lucknow, Kolkata and Delhi. Most of

them were under training with no independent clinical experiences.

The findings of present study were discussed in comparison with similar studies. A study conducted among Spanish and Latin-American nurses by **Amparo M et al**¹ revealed similar demographic distribution of sample. The majority of sample were female nurses (74.2%) with diploma in nursing (50.2%). A study by **Bashar J**⁶ on use of EBP among Nurses Working in a Teaching Hospital in Kuala Lumpur in 2018 also had most of the female nurses (84.5%) and most of them were married (50%) which is in contrast with the present study.

In the present study mean score for utilization of research evidences were high among 31.52%, moderate utilization were there among 54.35% and low utilization of research evidence were there among 14.13% of

nursing students however study by **Bashar J**⁶ reported 19.1% of poor utilization of EBP, 1.8% mid-range utilization of EBP and 79.1% had good utilization of EBP among student nurses.

Carlton JB et al⁷ studied EBP among nurses in Qatar revealed that Application of EBP knowledge was found to increase with level of education and varied by clinical specialty which is in agreement with the present study where mean scores in all four subscale is higher among post graduate nursing students (5.45 ± 0.63), followed by Post basic students (4.76 ± 0.77) and undergraduate students (3.51 ± 1.09) probably encouragement to conduct more studies at post graduate level and referring the research evidence for best clinical practice may be the reason for higher score among post graduate nurses.

The present study also found that the undergraduate students had more positive attitude score (4.04 ± 1.78) towards EBP contributing to total score as compared to the knowledge, practice and communication of research which is a positive sign towards EBP, Post basic students as well as post graduate students had high communication of research score (5.47 ± 0.56) & (6.11 ± 0.65) contributing to total score of EBPQ indicating the scope for higher utilization of research evidences in nursing care practices.

Zhou F et al⁸ reported that EBPQ total score was 4.24 ± 0.79 , related to Practice score was 4.08 ± 1.05 , Knowledge/skill score was 4.17 ± 0.84 and attitude score of 4.75 ± 1.01 however in present study total EBPQ score was 3.89 ± 1.218 , related to practice score was 3.35 ± 1.53 , related to attitude score was 4.41 ± 1.78 and related to knowledge/skill score was 3.77 ± 1.35 . Both of the studies show positive attitude of nurses towards research utilization. The comparative findings give us scope to improve EBP among nursing students.

Similarly **Al-Busaidi et al**⁹ studied EBP among nurses in 2019 revealed that Overall, attitudes towards EBP had the highest mean score (5.5 ± 1.2) followed by knowledge/skills (4.9 ± 0.8) and practice (4.7 ± 1.2) subscales, the findings are similar with the present study.

The negative response analysis for all 21 items were done and negative score (1-2) by more than 30% of sample were considered for improving EBP among

students. In the present study the student nurses have lower utilization of evidences related to lack of critically appraising the evidences (48.2%), tracking down the evidences (45.28%), integrating the evidences with practice (44.6%) and difficulty in formulating clearly answerable research question (41%) however study by **Zhou F et al**⁸ said that lack of Research skills (80.8%), inability to Critically analyse evidence against set standards (75.3%), not able to make time in a work schedule for research (72.8%) and inability to Critically appraising literature (75.2%) were the main hindrance of low utilization of EBP among student nurses. Based on these findings an EBP model may be developed to improve the utilization of research evidences among student nurses.

The association of selected socio demographic variables with EBPQ score revealed that there was statistically significant association between SEBPQ score and place of residence ($p=0.000018$). The mean score of SEBPQ was high among 30-40 years of age (4.10 ± 0.639), post graduate students (4.08 ± 1.276) and nursing students with >20 years of clinical experience (4.82 ± 0.150) however there was no statistically significant association were found between these variables and SEBPQ score. There was no association found between marital status, specialization, designation of nursing students and SEBPQ score in the present study may be due to less representative samples from different speciality of nursing.

The researchers had meticulously planned and implemented the present study design but there were some limitations of the study too. The present study was a multicentred study, however the selection of institute was based on the approachability and administrative support of the concerned institutes. The study was limited to selected colleges of nursing of India due to administrative and financial constrain. The researchers could not include male student nurses in the study as all the nursing educational institute were for female candidates, due to above reasons the findings of the present study may not be generalisable to all nursing students of India. Since there may be a number of personal professional and social attributes supporting or hindering the EBP among nursing students which could not be covered by present study, it is recommended to

conduct a qualitative study on utilization of EBP among nursing students, it would be able to contribute more elaborate information towards evidenced based practice in Nursing.

Conclusion

The evidenced based practice in nursing education is a matter of great concern and of significant importance. Inclusion of clinical nursing practices based on current evidences will make the professional practice more updated and client oriented as today's clientele is well informed as well as very much concerned about health. Evidence based practice can be integrated into nursing education in India by providing necessary administrative and technical supports to college of nursing, preparing nursing faculty with necessary skills in each step of evidenced based practice as well as curriculum development to support various learning activities contributing towards evidence generation, utilization and communication. Present study provides few baseline information regarding research utilization among nursing students may serve for further studies related to development of EBP modules for teaching students based on the response pattern of students highlighting the areas to focus on to improve EBP among nursing students.

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Supporting a Nursing Program in a Low-Income Country: A Collaborative Project

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Abstract

Background: Healthcare professionals' number in Haiti is reported to be 5,400: 2.8 per 1000, or 1.8 nurses and one physician per 10,000 people. There is a need for well-trained professional nurses to care for the population and educate incoming nursing professionals. The City University of New York's (CUNY) involvement in a project to strengthen the nursing school at the Université Publique d'Artibonite aux Gonaives (UPAG), is an essential initiative that can help improve Haiti's health care system.

Methods : Members of the CUNY faculty team traveled to Haiti to conduct the initial needs assessment. They met with students and faculty at UPAG. A program was designed to respond to the need's assessment findings. CUNY faculty for the UPAG project were selected from a core member of CUNY Chancellor's Haiti Initiative team. It included educational sessions for senior students and an opportunity for UPAG nursing faculty to participate in a professional development program.

Conclusion: The project fulfilled the needs for faculty and students' supports. However, there is still more work to be done. To this end, two UPAG nursing faculty participated in a Master's in Nursing program at Regis University and CUNY faculty continued to support students through a mentorship program.

Keywords: *Cultural, CUNY, Haiti, Faculty, Nursing Education, Students*

Introduction

Most of Haiti's health facilities are in Port-au-Prince and the surrounding area; few health facilities have been established in the rural and provincial regions¹. Furthermore, the number of healthcare professionals in Haiti is limited to a total of 5,400: 2.8 per 1000, or 1.8 nurses and one physician per 10,000 people². This number is alarming as nurses have been reported to play an important role in improving health around the globe^{3,4} and in Haiti the healthcare system depends heavily on nurses⁵ There is a need for well-trained professional nurses to care for the population and educate incoming nursing professionals. Haiti additionally needs well-trained, auxiliary health or community health care workers to provide primary care and health education. The City University of New York's (CUNY) involvement in a project to strengthen the nursing school at the Université

Publique d'Artibonite aux Gonaives (UPAG), and an additional project to train community health workers in the Les Cayes area, at the University Publique du Sud aux Cayes (UPSAC) are essential initiatives that can help improve Haiti's health care system, decentralize and revitalize health care outside of Port-au-Prince^{2,5}.

Data from the 2013 report from the Enquête Mortalité, Morbidité et Utilisation des services (EMMUS) indicated that in Haiti, 59 infants per 1000 die before their first birthday, and 31 per 1000 of those who survived their first birthday die before the age of five⁶, compared to 14.6/1000 that die before their first birthday in Jamaica¹. Throughout Haiti, anemia is rampant; chronic malnutrition among pregnant women is over 22%. The cholera outbreak of 2010 resulted in the deaths of 8,300 Haitians, and 650,000 cholera survivors¹. Thus, the creation of UPAG constituted an event of great

importance in the socio-economic and cultural life of Haiti in general, and of the department of Artibonite and the city of Gonaives in particular. Gonaives is the fourth largest city in Haiti, with a population of approximately 300,000 according to the 2011 census. The university fills a gap in higher education and addresses the lack of qualified institutions of higher education in the geographical regions⁶. The School of Nursing is one of UPAG's three higher education schools. As the overall goal of CUNY's Haitian Initiative was to improve the capacity of the regional public universities, it was appropriate for CUNY to become involved in a project that would increase the ability of the Gonaives nursing school to educate its nursing students so that they can be better equipped to improve healthcare in Haiti.

The School of Nursing has 14 faculty members who are considered full time. However, due to inconsistencies in payment⁵, most have other employments which take them away from the primary job of teaching. The School of Nursing facilities were cement classrooms that were often too small. Classes are held, Monday-Friday, from seven in the morning to six in the evening. Saturdays are reserved for completing lectures, appointments, or special projects. Total student enrollment in the nursing program is about 250, with 65 students per class. Enrollment at UPAG is based on competitive yearly examination organized by the Higher Council (Rectorate) for the School of Administration and the School of Education, or by the Ministry of Public Health via the Direction of Formation and Perfection in Sanitary Care (DFPSS) for the School of Nursing. The school of nursing only grants a diploma at this time. The existence of UPAG represents a turning point in the life of the population.

Nursing education in Haiti is greatly affected by the lack of resources^{5,7}. Although UPAG is affordable, it provides few amenities. It lacks a cafeteria, student lounge, or place to study. As it is so often the case in Haiti, the use of resources is compromised by the limited number of updated books, computers and Internet access. UPAG offers a professional license in Education, Business Administration, and Nursing.

Materials and Methods

Assessing the Needs

Members of the CUNY team traveled to Haiti to conduct the initial needs assessment at UPAG. CUNY faculty met with sixteen 4th-year students who were in their tuberculosis (TB) rotation. An additional 39 nursing students were out of town in a psychiatric rotation in Port-au-Prince. The students who were present discussed their reasons for selecting to study at UPAG. All students were aware that the UPAG nursing program was an additional year, compared to others. They chose UPAG for safety reasons (they felt Port-au-Prince was too dangerous), the lack of nursing programs in their home communities and a desire to experience life in a different community.

In the afternoon, CUNY faculty visited a class of 47 third year students and accompanied them on a clinical tour led by an interdisciplinary team. CUNY faculty observed role-modeling by the nurse in charge and found that although students had advanced skills and knowledge, they needed further experience in medical/surgical and in health assessments. They additionally identified that:

- The daily census dictates students' assignments.
- Students are supervised in clinical rotations by unit charge nurse.
- Students provide complete care for patients and perform all skills.
- Students provide group health education. An interdisciplinary team approach is used, with close collaboration with nursing personnel (monitrice to auxilliaire).
- Nurse Auxilliaires serve almost the same function as nurses.
- Because of poor resources, health care personnel, and students sometimes contribute to buy medications for patients.
- There was a need for greater supervision.

In addition, to the above, the needs assessment revealed five important characteristics:

- Devotion of professors in spite of low or no pay
- High level of support from professors
- Close guidance from the director of the program
- The students had a caring attitude toward patients
- The students were involved in the community

Moreover, students faced numerous challenges, such as:

- Scarcity of trained professors
- Difficulty of obtaining transportation to clinical sites
- Limited equipment and supplies in the lab
- Limited number of up-to-date textbooks and reference books
- Few specialty services in the teaching hospital, Hopital Bon Secours

Furthermore, the CUNY team learned that after graduation, students' job prospects in Gonaives are poor. The main employer, Hopital, Bon Secours, is small with approximately one hundred beds. The hospital provides the following services: outpatient maternal health, malnutrition care, inpatient medical, surgical, obstetrics, operating room, and pediatric care. Six out of the 16 students interviewed have post- graduation aspirations and will seek specialization. One student who aspires to be an educator is a government employee whose education was being funded by her employer.

Students reported that the professors were receptive to their needs, and that the program Director listened and was available to students. However, communication may sometimes be hindered because of the expectation that they speak in French. The CUNY needs assessment team also met with the fundamental nursing faculty. They discussed the scarcity of supplies for teaching, demonstration, and practice; moreover, they shared their teaching methods, which included lectures, role-playing, and Power-Point presentations.

From this initial need assessment, the CUNY team made the following recommendations

- Facilitate the attendance of two faculty members to Regis University in Boston, Massachusetts.
- Request French textbooks from Elsevier publishers.
- Obtain a list of needed supplies from Director of Nursing Program.
- Track students' post-graduation in their professional journey
- Offer professional development, i.e. training, interview skills, interdisciplinary collaboration
- Improve the visibility of males in the profession and integrate more males in the program

Implementation

The Program was designed to respond to the need's assessment, with particular regard to the need for more teachers, more instruction in medical/surgical, and English conversation. CUNY faculty for the UPAG project were selected from a core member of CUNY Chancellor's Haitian Initiative team which included CUNY doctoral nursing students and CUNY faculty. The program faculty were selected for their teaching expertise, fluency in Kreyol, and familiarity with Haiti.

The CUNY Initiative held its first project in the summer of 2011. The project was about health assessments and pain management. Participants included 59 third year students. The approach was to teach differently from the traditional way, in which students sat at individual classroom desks and faced the teacher. CUNY faculty sat students into a circle to facilitate visibility and encourage participation. Session run Monday through Friday, from 7am to 5 or 6 pm, for two-weeks. Topics included:

- Communication techniques
- English as a second language to the nursing students
- Group Presentations- Based on English terminology and patient diagnoses

- Medical/Surgical nursing care and assessment.
- Diabetes
- Hypertension
- Post-operative Pain Management
- Assessment of pain in hospitalized patients-both Haitians and non-French and non-Kreyol- speaking patients.
- Disaster Nursing Care and Assessment
- Hands on practical experiences

- Care of the patient who was in an accident
- Wound care

In the second summer, the team developed a more comprehensive program that addressed both students and faculty needs. It included two weeks of student training and three days of faculty development. The students were eager to learn and participated to the fullest in the class activities. The classes were lively and interactive. Professors and students were dedicated to accomplishing the task at hand, which was to teach and to learn. Table 1, 2, and 3 delineate the two weeks of students and faculty workshop schedule.

Table 1 : Student Workshops Week One

Time	Mon	Tues	Wed	Thurs	Fri
800AM-900AM	Orientation Validation of educational needs	Integrating English in nursing and medical practices	Nursing and medical terminology hypertension and diabetes mellitus	Documentation	Watch video 2 episodes of Grey’s Anatomy
900AM-950AM	Activities / Assignments	Cross cultural understanding; short reading passages; dialogue; role-play	Listen to audio recording of nursing terminology, read, and write nursing terminology;	Workbook exercises	Group discussion related to film watched
950AM-1000AM	Break	Break	Break	Break	Break
1000AM-1100AM	Small group work assignments (in class)	Small group work assignments (in class)	Discuss pictures and vocabulary related to nursing care; role-play	Small group work assignments (in class)	Review work covered during the week
1100AM-1200PM	Cont. above	Cont. above	Cont. above	Cont. above	Cont. above
1200PM-1240PM	Lunch	Lunch	Lunch	Lunch	Lunch
1240PM-130PM	Listening Reading Speaking	Listening Reading Speaking	Listening Reading Speaking	Presentations	Discuss outline for final project; distribution of assigned topics
130PM-200PM	Group discussion	Group discussion	Group discussion	Presentations	Cont. above
200PM-210PM	Break	Break	Break	Break	Break
210PM-300PM	Evaluation of day,	Evaluation of day	Evaluation of day	Jeopardy activity/ evaluation	Jeopardy Evaluation of session

Table 2: Student Workshops Week Two

Time	Mon	Tues	Wed	Thurs	Fri
800AM-915AM	View clinical skills videos: Fundamental to advance skills. Discussion demonstrations clinical skills	Practice of clinical practice skills: Injections	Emergency medical/nursing services	Final project presentations	Final project presentations Summation Course evaluation
915AM-1000AM	Discussion and practice of clinical skills	Activities / Assignments based on practiced skills and patient scenarios	Role play	Final project presentations	Final project presentations Summation Course evaluation
1000AM-1010AM	Break	Break	Break	Break	Break
1010AM-1130PM	Cont. skills practice Dressing changes	Cont. above/ case studies	Role play cont. Case studies	Final project presentations	Cont. of summation and course evaluation
1130PM-1210PM	Lunch	Lunch	Lunch	Lunch	Lunch and Closing Ceremony
1210PM-1:20PM	Review and discussion	Review and Jeopardy	Small group work on case studies	Review/ student oral evaluation	Closing Ceremony
1:20PM-3:10PM	Review/ Q & A	Cont. above	Cont. above	Review/ student oral evaluation	Closing Ceremony
2:100PM-2:20PM	Break	Break	Break	Break	
220PM-420PM	Evaluation of day: Group and individual evaluation	Evaluation of day, Group and individual evaluation	Review and evaluation of day	Review/ student oral evaluation	Closing Ceremony

Table 3: Faculty Development Week One

Time	Mon	Tues	Wed	Thurs	Fri
1200PM-1240PM	Lunch	Lunch	Lunch	Lunch	Lunch
1240PM-140PM	Introduction UPAG nursing faculty discuss method of teaching used: what works, what does not work?	Strategies to maintain interest and participation in class Transitions activities Wake up activities Emphasize main points	Presentation of developed case studies		
140PM-240PM	Overview of Bloom Taxonomy of cognitive domain and how it applies to nursing education	Must know strategies for any teaching situation Activity based Direct instructional Arts based Cooperative Independent learning Reflection	Strategies for the lab setting: Simulation, standardized patients, Case studies		
240PM-300PM	Break	Break	Break	Break	Break
300PM-400PM	Learners types Adapted teaching strategies for different types of learner types	Case studies: What is it How to develop How to use in class and lab setting Group work Homework assignment	Evaluation techniques Assignments: How to make assignments meaningful		
400PM-500PM	Adapted teaching strategies for different types of learner types	Strategies to increase students' clinical judgment	Evaluation		

The project offered UPAG nursing faculty members an opportunity to participate in a professional development program. Faculty were exposed to alternative teaching methods that provided them with strategies for preparing students for the national licensure exam. The goal was for UPAG nursing faculty to become knowledgeable about ways to develop and integrate case studies in their classes, identify strategies for teaching different types of learners, and demonstrate activities that promote learning. The faculty program used evidence-based information to provide new skills

and knowledge to nursing faculty and enable them to identify new strategies that would strengthen their teaching skills.

Faculty members were receptive to the project, but their part-time jobs made them unavailable to participate. Several taught at other schools of nursing, and/or worked at local hospitals and community health settings. Of 14 nursing faculty members, four attended the first day of the workshop. Due to their other obligations, none of the faculty members were able to attend subsequent

workshops. The first meeting was very interactive. The UPAG nursing faculty discussed their method of teaching and reflected on what work or does not work. There were difficulties with using the prepared Power Point presentation, due to lack of projector. The printed slides were used to discuss the relationship of Bloom's Taxonomy to nursing education and appropriate strategies for teaching different types of learners.

Language of Instruction

The languages of instruction were French, Kreyòl and English. Translation had to be provided for non Kreyòl speaking CUNY professors. Teaching drug calculations in Kreyòl was a significant experience. Kreyòl is usually not the preferred language in teaching at the university level, although 100% of the population speak Kreyòl and Kreyòl is the only language that 85% of the population speak and understand. Students were encouraged to write their nursing history in Kreyòl. They conceded that they have not so far communicated with patients in any other language than Kreyòl. Attendees admitted that there is a need to have scientific materials, including nursing materials, developed in Kreyòl. The two days of drug calculation class consisted of calculation of oral, solids and liquid medications.

The following is an example of a drug calculation shared with the student:

Doktè a preskri 0,5mg digoxin, famasi a voye digoxin 250 microgram pa tablèt, konbyen tablèt ou dwe bay kliyan? Translation: A client is ordered 0.5 milligrams of Digoxin 250 microgram tablets are available. How many tablets will you give? Answer: 2 tablets.

Conclusion

This project was guided by initial encounters with students, faculty and the Director of the Gonaives nursing program. The project fulfilled the revealed needs for faculty development programs that would introduce the faculty to alternate instructional strategies and learning for planning, developing, and presenting components of core nursing related topics. In addition, it supported students in their expectations for access to a program with clear and attainable objectives, that would enable them to express themselves while learning and preparing them to meet the challenges of the Haiti's

healthcare system.

While we experienced some challenges students, faculty and the administration verbalized an appreciation for the educational resources and alternative teaching strategies presented. The students were especially satisfied with teaching strategies that were culturally significant for the Haitian population, promoted learning and were inclusive for all types of learners. Facilitating a culturally congruent nursing education program is paramount. Cultural competence has been cited as a significant contributor to balancing the gap in global health equity³. While many of our goals for the program were accomplished there is still more work to be done in providing support for the students, faculty and healthcare system in Haiti. This experience further identified a need for additional resources for both students and faculty to promote and elevate the profession of nursing in Haiti. As a result of the CUNY project, two nursing faculty members at UPAG participated in an educational program for a Master's in Nursing through Regis University. In addition, CUNY faculty continue to support students through a mentorship program. This fulfils the need for continuing education for nursing faculty identified by Louis and Moloney⁸. However, much more need to be done. As stated by Clark et al.2015^(p. 61) "Adequate recognition of the vital role of nursing in the health system and support for nursing continuing education at a national, organizational and institutional level is an important preceding factor for the successful development of programmes."

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Conflict of Interest: Nil

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Exploring Workplace Bullying and Turnover Intention among Registered Nurses in Tertiary Hospitals, Lahore, Pakistan

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Abstract

Background: Workplace bullying is common all over the world. However, the medical field is one such field where bullying is more frequent than any other field. Specifically, nurses in the hospitals are identified to be more exposed to workplace intimidation as compare to other health members, yet underreported. Workplace bullying is one of the principal factors following turnover intention among nurses.

Purpose: This survey aims to explore the prevalence of workplace bullying and its association with the intent to leave the job among registered nurses.

Methods: A Cross-Sectional survey was conducted from September 2019 to April 2020. A convenience sample of 242 nurses employed in two public and two private teaching hospitals of Lahore had been selected for the study. Data analysis was done using the latest version of SPSS 25. Descriptive statistics mean, median and standard deviation were used for the description of data.

Results: The prevalence of workplace bullying was 8.02% among nurses. A significant relationship was found between workplace bullying and nurses' turnover intention. The study found diploma nurses with less age experienced more workplace bullying.

Conclusions: It is suggested that workplace bullying is highly rampant in our health care system and is significantly associated with the nurse's turnover intention. There is an immense need to establish new policies that can control bullying and upsurge nurses' retention. Further education plays a role in workplace bullying.

Keywords: Workplace bullying, Nurses, Turnover intention

Introduction

Workplace bullying delineates conditions that encompass the harassment of an individual by another person or a group frequently and throughout a long period. Consequently, the person suffers from physical,

psychological, and emotional disruptions. Workplace bullying among nurses is the intention of giving physical, psychological, and emotional abuse range from humiliating, disrespecting, ignoring, yelling, swearing, and throwing things to control them and interrupt their performance of duties¹. Bullying behavior is thought different from regular encounter as it intends to expose someone to social isolation, ruin the personal dignity, lower self-esteem and dropping its productivity at work. Bullying is considering a workplace stressor² that is significantly related to negative consequences of absenteeism, insecurity, loss of commitment, and

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intentional turnover from the organization³.

Workplace bullying is common all over the world. However, the medical field is one of such fields where bullying is more frequent than any other field. Specifically, nurses in hospitals are identified to be more exposed to workplace intimidation. It refers to the harassment behavior by nurses of the same standing. Globally, 20-30% of nurses are suffering from workplace bullying in their careers⁴. In the United Kingdom, every one out of 6 nurses stated that they had suffered bullying in the last twelve months. In the United States, more than half of the nursing population reported that they watched their colleagues being bullied³.

Turnover intention is a deliberate and planned desire to leave the organization. The worker's turnover intention is a primary mental predecessor of their final turnover actions before they leave the organization. It is evident that high intentional turnover negatively affects organization growth and development. It leads to a shortage of staff and excessive burden on existing staff leading to burnout and expensive consequences in the future⁵. The main objective of the health care delivery system is to provide excellence in care that cannot be possible without the qualified and quantified number of health care professionals⁶. Quality is compromised due to the deficiency of prepared, competent health professionals while quantity address with the shortage of staff is the principal obstacle in the provision of quality care.

Bullying in nurses is not reported only in European countries but it is also found in the Asian Region. Pakistan is one of those countries that are facing an acute shortage of nurses. It is reported that there are 1 million nurses needed in the country. While the government indicated that there are 60,000 more nurses needed in the country⁷. Pakistan is a country with having male dominance culture. Here nurses are more bullying by their male members of the health team. But reporting of such cases is scary due to feelings of embarrassment in front of others and fear of social stigma in particular⁸. Several factors influence on intention to turn over in which bullying is also a major factor⁹.

Previous studies find an association between workplace bullying and turnover intention¹⁰. However, In our culture like Pakistan, there is a gap in knowledge about the prevalence of bullying at the workplace as many cases are under-reported due to cultural hinders¹¹. The managers cannot make strategies and can't focus on the problem if they do not know the existence of the problem and its correlation to the nursing shortage. Although sufficient literature is available regarding bullying and intention to turnover. There is little published literature that investigates the problem in the context of Pakistan. While there is a dire need to explore the exact picture and its association with intention to job turnover¹². Therefore, this survey aimed to determine the prevalence of bullying among nurses and its association with the intent to leave the job.

Material and Methods

A descriptive cross-sectional survey design was used to assess the experience of bullying among registered nurses working in 2 public and 2 private teaching hospitals of Lahore, Pakistan. A sample size of 242 nurses was selected through convenience sampling. The data collection tools comprise three types of the questionnaire; the demographic form contains information regarding age, sex, gender, marital status, experience, education, type of facility, and nursing licensure. The Negative Acts Questionnaire-Revised (NAQ-R) is a 22 items scale focusing on various types of behaviors that may be professed as bullying if they arise regularly¹³. Turnover intention measure is a two-item scale and ranging from 0 to 7¹⁴. The items observed respondents reflect about abandoning their job and if they are looking for other jobs through visiting other places. The data collection was done after the approval of the ethical institution Committee. Data collection was conducted from September 2019 to April 2020 and included registered nurses from all educational levels as well as both genders. Nurses, with less than 6 months of experience had excluded. Complete anonymity was observed. A system of numbers identifying the non-responders known only to the researcher was used. Data analysis is done by using the Statistical Package of Social Sciences (SPSS) 25. Cross tabulation was done and Chi-Square was applied to determine the level of significance.

Results

There were 242 male and female nurses who participated in our study. Out of 242, there were 53 male and 189 female nurses. Study participants were divided into five age groups from 20 years to more than 60 years of age. The highest number of participants was from the 20-30 years of age group followed by the 41-50 years of age group. Out of 242 nurses, 135 were married while 107 were unmarried. Qualification of study participants was also assessed and divided into three categories,

diploma, graduate, and a postgraduate qualification. The highest number of participants were from the diploma (113) followed by graduate qualification (75). Participants were asked about their work experience and divided into four categories. The highest number of participants fall in 1-5 years of experience (76) followed by 6-10 years of experience (65).

Mean and standard deviation were calculated of gender, marital status, age, level of education, and years of experience, and values are given in table 1.

TABLE 1: MEAN AND STANDARD DEVIATION WERE CALCULATED OF GENDER, MARITAL STATUS, AGE, LEVEL OF EDUCATION, AND YEARS OF EXPERIENCE.

Variables	Gender	Marital Status	Age	Level of Education	Years of Experience
Mean	1.78	1.44	2.12	1.76	2.30
Std. Deviation	.414	.498	.972	.796	1.109

RELATIONSHIP BETWEEN LEVEL OF EDUCATION WITH BULLYING

Cross tabulation was done for level of education with bullying and results were found significant for which p-value resulted in 0.000. Of those who were scored less than the median, 36% were having a diploma and 29.8% were from graduation. Respondents securing equal to or more than the median score 10.7% of them were having diploma qualification. For person-related bullying, those

who were scored less than the median, 22.3% were having a diploma and 18.6% were from graduation. Respondents securing equal to or more than the median score 24.4% of them were having diploma qualification. For physically intimidating those who were scored less than the median, 20.7% were having graduation and 18.6% were from the diploma. Respondents securing equal to or more than the median score 28.1% of them were having diploma qualification as shown in table 2.

TABLE 2: CROSS TABULATION OF LEVEL OF EDUCATION WITH BULLYING

Level of Education	Work-Related Bullying		Chi-Square Value
	Less than 28	More than 28	
Diploma	87 (36.0%)	26 (10.7%)	X ² = 16.1, df = 2, p-value = 0.000
Graduation	72 (29.8%)	3 (1.2%)	
Post-graduation	50 (20.7%)	4 (1.7%)	
Level of Education	Person Related Bullying		Chi-Square Value
	Less than Median (53)	Equal or more than the median (53)	
Diploma	54 (22.3%)	59 (24.4%)	X ² = 40.9, df = 2, p-value = 0.000
Graduation	45 (18.6%)	30 (12.4%)	
Post-graduation	3 (1.2%)	51 (21.1%)	
Level of Education	Physically Intimidating Bullying		Chi-Square Value
	Less than the median (12)	Equal or more than the median (12)	
Diploma	45 (18.6%)	68 (28.1%)	X ² = 58.5, df = 2, p-value = 0.000
Graduation	50 (20.7%)	25 (10.3%)	
Post-graduation	0 (0%)	54 (22.3%)	

There was a calculated **Prevalence** of bullying among the given 4 hospitals and it was **8.02% (152/1894 × 100)**. Out of 242 participants, 169 participants were thinking about quitting their jobs while 73 were not. Out of 242 participants, 180 participants were exploring new jobs while 62 were not.

Relationship of Bullying with Thinking About Quitting Job and Exploring Other Opportunities:

Participants were asked to think about quitting their jobs in a relationship with bullying. Bullying was divided into three categories, work-related bullying, person-

related bullying, and physically intimidating bullying. Results of work-related bullying were statistically significant. The majority of participants said yes there is work-related bullying and that's why we want to quit our job (59.5%). Results of person-related bullying were statistically insignificant. A large number of participants said yes there is person-related bullying and that's why we want to quit our job (39.7%). Results of physically intimidating bullying were statistically significant. The majority of participants said yes there is physically intimidating bullying and that's why we want to quit our job (40.9%) as shown in Table 3.

Table:3 Thinking about quitting and bullying

Thinking about quitting your job?	Bullying		Chi-Square Value
	No	Yes	
	Work-Related Bullying		
No	65 (26.9%)	8 (3.3%)	X ² = 13.2, df = 1, p-value = 0.05
Yes	25 (10.3%)	144 (59.5%)	
Yes	Person Related Bullying		X ² = 6.4, df = 1, p-value = 0.06
	Yes	29 (12%)	
No	73 (30.2%)	96 (39.7%)	
Yes	Physically Intimidating Bullying		X ² = 21.5, df = 1, p-value = 0.00
	Yes	25 (10.3%)	
No	70 (28.9%)	99 (40.9%)	

Exploring Other Job Opportunities by Checking Job Listing and Bullying:

Participants were asked to explore other job opportunities concerning bullying. Results of work-related bullying in relationship with exploring other job opportunities in checking job listings were statistically insignificant. The majority of participants said yes, we are exploring other job opportunities but not because of bullying (64.5%).

Results of person-related bullying were statistically significant. A large number of participants said yes there is person-related bullying and that's why we are exploring other opportunities (43.8%). Results of physically intimidating bullying were statistically significant. The majority of participants said yes there is physically intimidating bullying and that's why we are exploring other job opportunities (45.5%) as shown in Table 4.

Table 4: Exploring other job opportunities by checking job listing and bullying

Exploring other job opportunities	Bullying		Chi-Square Value
	No	Yes	
	Work-Related Bullying		
No	53 (21.9%)	9 (3.7%)	X ² = 3.9, df = 1, p-value = 0.07
Yes	156 (64.5%)	24 (9.9%)	
Yes	Person Related Bullying		X ² = 9.1, df = 1, p-value = 0.00
	Yes	28 (11.6%)	
No	74 (30.6%)	106 (43.8%)	
Yes	Physically Intimidating Bullying		X ² = 20.3, df = 1, p-value = 0.04
	Yes	25 (10.3%)	
No	70 (28.9%)	110 (45.5%)	

Discussion

In the last decades, nursing research emphasized the immoral impact of workplace bullying on employees' performance and health care systems¹⁵. The turnover rate in the nursing profession is problematic. There are many other factors but workplace bullying is also one of the principal factors. It is reported that 19.0 to 86.5 % of nurses experience workplace bullying in their duty hours¹⁶. Workplace bullying not only having physical, psychological, and emotional consequences. Even it is associated with high job turnover intention among professional nurses.

The study was conducted in 2 public and 2 private tertiary hospitals of Lahore, Pakistan. The results showed that females comprise 189 (78.09%) as compared to males 53 (21.9%) were the major part of the total sample. These results are following the study conducted in the General hospital in Seoul, Gyeonggi, and Chungnam. The study observed the relationship between workplace bullying with staff burnout, professional quality of life, and turnover intention. The study reported the same results that male participants were less as compared to females¹⁷.

The study reported that the highest number of participants was from the 20-30 years of age group. The results were in accordance with the study conducted in the General hospital of South Korea for exploring factors associated with nurses' turnover intention. The study also reported that the majority of the participants 64.6% were in the 26 to 29 year age group³.

The study showed that the prevalence of bullying was 8.02% among nurses working in both public and private hospitals. The result was contradictory to the study conducted in emergency nurses of five hospitals in Amman, Jordan. The objective of the study was to determine the occurrence of bullying and its prevention in association with personal and organizational aspects. The study reported a high level of prevalence of bullying 90% among nurses. This difference maybe because of the small sample size of study¹⁸.

Another important association was found between age, level of education, and workplace bullying for which the p-value was 0.000. The results are following the study conducted on 404 nurses working in Polish

health care facilities. Data was collected through the online system and the study's basic aim was to determine risk factors for workplace bullying. The study reported a significant association between age, level of education, and work-related bullying¹⁹.

The study reported that out of 242 participants, 169 participants were thinking about quitting their jobs. While 180 participants were exploring new jobs. The study found a significant association between work-related bullying and turnover intention as 59.5 % of participants agree that due to work-related bullying, they want to quit their job. The results were in the same line as the study conducted in Korea at five public hospitals. The study objective was to determine the association between workplace bullying, organizational obligation, and turnover intention. The study reported a significant association between workplace bullying and intent to leave the job²⁰.

The study showed 39.7% of participants showed that there is person-related bullying and that's why we want to quit our job. These results are comparable with the study conducted among 135 newly registered nurses selected from five different nursing schools of Northwestern in the period between 2007 to 2010. The study's objective was to identify bullying and its association with work. The study reported that workplace bullying present among newly registered nurses and 29.5% had reported leaving the profession due to bullying²¹. The majority of participants in our study said yes there is work-related bullying and that's why we want to quit our job (59.5%). The results are following the study conducted among 270 nurses of the general hospital. The study objective was to analyze workplace bullying, burnout, and turnover among registered nurses. The study reported workplace bullying was significantly associated with burnout and nurses' intentional turnover²².

Conclusion

The study concluded that workplace bullying is highly prevalent in health care facility included both public and private hospitals. Consequently, leading to turnover intention and looking for a new job opportunity. Therefore, need adequate strategies to reduce workplace bullying and enhance nursing retention in the profession.

Recommendations: The study recommends making and Implement new strategies while upgrading existing policies regarding a better workplace. Introduce a reporting system to report such incidents that cause physical, psychological, and emotional disturbance during the work environment

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Conflict of Interest - Nil

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Adolescent Food Habits and Its Association with Overweight and Obesity among Female Students in Eastern Region of Saudi Arabia

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Abstract

Background: Adolescence is a period of extreme growth changes. Malnutrition along with the adolescence growth changes has significant effects for maternal and neonatal wellbeing. Bad sequences in the prenatal period and childbearing are the most important reason of deaths in adolescent girls aged 15–19 years. **Aim:** To assess the overall dietary “Food Habits” of adolescent girls. Also, to assess the relationship between obesity, food habits and physical activity patterns in adolescents. **Subjects and Method:** A quantitative-correlational research design was utilized. A Cluster random sampling strategy was used. The study conducted at six middle and high schools, Al Ahsa, Saudi Arabia. The three sectors covered through two schools from each sector. The survey was conducted among 593 female school students between November 2019 –January 2020. The questionnaire contained two sections. Ethical approval obtained from the Education Department of Ministry of Education after obtaining approval from the College of Applied Medical Sciences Research and Ethical Committee. **Results:** The mean of body mass index of the participants was 21.1 ± 3.5 . It was clear that (23.6%) of the participants were underweight, while (67.1%) were within normal weight and (7.9%) were overweight and (1.4%) were obese. Near to half of the participants (47.1%) did not make any daily activity. (19.2%) of the participants took supplementation medicine. Adolescent Food Habits Checklist (AFHC) Score was low between the schoolgirls. **Conclusion:** The current study reinforced that Adolescent Food Habits Checklist (AFHC) Score was at a low level among the schoolgirls. Near to half of the adolescent did not make any daily physical training. While range of the physical activity was from (15-30) minutes per day.

Keywords: Adolescent, Exercise, Food Habits, Nutrition, Obesity.

Background

Adolescence is a period of extreme growth changes in physical, cognitive, and social development which is marked as a critical point in the lifetime. Adolescent health is greatly affected by childhood well-being. Likewise, adolescent health provides the basis for maternal and adult health status. Adopting health behaviors during

adolescence will attribute to consequences that can persist throughout the lifespan^[1].

The countries in the Arabian Gulf region have been under a rapid change from a traditional semi-urban to a modern and urbanized life. These changes begun in the wake of main findings of oil ever since the 1960s^[2]. Hence, a simultaneous rise in overweight, and other metabolic problems has emerged^[3].

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Adolescence is a vital time to deepen and broaden the foundations of good health and wellbeing in adulthood. According to The World Health Organization

(WHO), many major noncommunicable diseases are underlined by health-related behaviors and conditions that are commenced and reinforced during this period of life. Concerns have been highlighted regarding common health problems and behaviors that evolve during adolescence including diet, exercise patterns, overweight and obesity. These health problems lead to a serious impact on their wellbeing as tomorrow's adult [4].

A balanced diet put down roots for healthful growth and the development in childhood and adulthood periods. In the matter of eating, emphasis is laid on the type of foods, the technique of formulation, the amount of foods and the time between them. Bigger eating of high-energy nutrients, poor in nutrients and rich in fats, sweet and salty, as well as deficient exercises are issues that completely add to a considerable increase in the prevalence of overweight and obesity, along with building a base for active inequity of the whole organism [5,6]. Nutritional and dietary habits created during childhood and augmented throughout adulthood are challenging to regulate. Inappropriate diet in the growing populations may produce both age-related risks and unbalanced growth, particularly psychological aspects [7-9].

Adolescent malnutrition involves suboptimal nutritional consumption of macronutrients and micronutrients [10]. Simultaneously, obesity and overweight are associated to bad nutritional quality and have an effect on one-third of adolescents worldwide [11].

Malnutrition along with adolescence growth changes also has significant effects for maternal and neonatal wellbeing. Bad sequences in prenatal period and childbearing are the most important reasons of death in adolescent girls aged 15–19 y [12].

Teenage years is commonly correlated with a human growth period evidenced by physical and psychological alterations that cause worries and distress. The development of sexuality and the difficulty to establish one's own health are some of the elements related to this period [13].

Aim

To assess the overall dietary "Food" habits of adolescent girls. Also, to assess the relationship between

obesity, food habits and physical activity patterns in adolescents.

Subjects and Method

Research Design: A quantitative-correlational research design was utilized in the present study. Cluster random sampling strategy was used for the study using schools as the clusters.

Setting: The study conducted at six middle and high schools, Al Ahsa, Saudi Arabia, which cover the three sectors in Al Ahsa (Hafouf, Mubarraz, Villages). Two schools were selected from each sector.

Sample size and sampling: Based on the information collected from the Ministry of Education, female students' number in middle and high school (N= 46,900 students). The study sample covered (N = 593 students) with confidence interval level 95%, margin of error 4% to ensure the recruitment of adequate subjects. The survey was conducted among 593 middle and high female school students. The research was conducted in randomly chosen classes in schools (only governmental) in Al Ahsa, Eastern region, Saudi Arabia. The response rate was 93.7% (556 girls gave complete response).

Tools: The questionnaire contained two sections. *The first section* was for the general study participants' features as age, height, weight, body mass index, activities per minutes per day, taking supplementary medicine and income. *The second section* was for questions about dietary habits the researchers adopted The Adolescent Food Habits Checklist (AFHC) from Johnson, F, Wardle, J & Griffith, J [14]. The questionnaire contains 23 questions about food and nutritional habits like " lunch food, fruits, vegetables, fried foods, sugar and fast food. The scoring system for calculating Food Habits Checklist (AFHC) was to count the number of healthy responses x (23/no of items completed).

For validity and reliability testing, pilot study was conducted on 30 students and also for introduction of modification of the questionnaire. The questionnaire was translated into Arabic and back into English to be sure of the accuracy of the translation. Two evaluators checked the questionnaire and gave their opinions about the translation also. The preliminary sample was excluded from the main sample.

Ethics approval and consent to participate:

The researchers obtained approval from the Education Department from of Ministry of Education after obtaining approval from the College of Applied Medical Sciences Research and Ethical Committee. Due to the chronological age of the participants the data collectors gave both participants and parents their informed written consent for the study and gave for the school admin the approved protocol. Adolescent's assenting agreement to participate in research was obtained.

Data Collection

Data collection was conducted between November 2019 till end of January 2020. The researchers conducted the interviews in Arabic Language during the suitable

time for students (during activity class), with assist of Admin staff from each school. The questionnaire was used to assess student's food intake and dietary habits, the researchers consumed approximately 30 to 40 minutes with each student/class.

One of the researchers used commercial scale to measure student's weight. Clear instruction given to each student to keep minimal clothes and remove footwear during checking their weight. Regarding the height was measured using standing body height, recalibrated were done after each measurement. Body mass index (BMI) was calculated for each participant in a standard way.

Results**Table (1): Characteristics of the Study Population**

		Al Hafouf District	Al Mubarraz	Villages	Total
		329(59.2%)	174(31.3%)	53(9.5%)	556 (100%)
Age	Range	(14-19)a	(14-18)b	(13-19)	(13-19)
	Mean ± SD	16.3±1	15.9±0.9	16.3±1.6	16.2±1.1
Height	Range	(140-182)	(145-198)	(140-170)	(140-198)
	Mean ± SD	158.8±6.7	159.6±6.9	157.3±6.2	158.9±6.7
Weight	Range	(20-91)	(35-90)	(30-80)	(20-91)
	Mean ± SD	53.1±9.4	54.1±9.7	51.7±8.6	53.3±9.4
BMI	Range	(10.2-36.1)	(12.9-37.5)	(12.8-28.3)	(10.2-37.5)
	Mean ± SD	21.1±3.5	21.2±3.5	20.8±3	21.1±3.5
	Underweight	78(23.7%)	40(23%)	13(24.5%)	131(23.6%)
	Normal weight	220(66.9%)	116(66.7%)	37(69.8%)	373(67.1%)
	Overweight	26(7.9%)	15(8.6%)	3(5.7%)	44(7.9%)
	Obese	5(1.5%)	3(1.7%)	0(0%)	8(1.4%)
Activity	Yes	172(52.3%)	92(52.9%)	30(56.6%)	294(52.9%)
	No	157(47.7%)	82(47.1%)	23(43.4%)	262(47.1%)
Minutes/day	Median	20	15	30	15
	IQR	(15-30)	(15-30)	(15-34)	(15-30)
Chronic disease	Yes	22(6.7%)a	8(4.6%)a	11(20.8%)b	41(7.4%)
	No	307(93.3%)	166(95.4%)	42(79.2%)	515(92.6%)
Supplementation	Yes	62(18.8%)	37(21.3%)	8(15.1%)	107(19.2%)
	No	267(81.2%)	137(78.7%)	45(84.9%)	449(80.8%)

Cont... Table (1): Characteristics of the Study Population

Type	No	267(81.2%)	137(78.7%)	45(84.9%)	449(80.8%)
	Iron	21(6.4%)	9(5.2%)	1(1.9%)	31(5.6%)
	Calcium	12(3.6%)	10(5.7%)	0(0%)	22(4%)
	Vitamins	29(8.8%)	18(10.3%)	7(13.2%)	54(9.7%)
Marital Status	Single	327(99.4%) ^a	169(97.1%) ^b	50(94.3%) ^b	546(98.2%)
	Married	2(0.6%)	5(2.9%)	3(5.7%)	10(1.8%)
Had Children	Yes	2(0.6%)	3(1.7%)	1(1.9%)	6(1.1%)
	No	327(99.4%)	171(98.3%)	52(98.1%)	550(98.9%)
Income	< 5000	38(11.6%) ^a	11(6.3%) ^b	24(45.3%) ^c	73(13.1%)
	5000-10000	123(37.4%)	50(28.7%)	22(41.5%)	195(35.1%)
	> 10000	168(51.1%)	113(64.9%)	7(13.2%)	288(51.8%)

Superscripts with different small letters refers to significant difference between each two groups

Table 1 shows that, the total number of the participants was 556. The mean age, height and weight of the participants were 16.2±1.1 years, 158.9±6.7 cm, and 53.3±9.4 kg, respectively. For the mean of body mass index, it was 21.1±3.5. For being underweight it was clear that 131(23.6%) of the participants were underweight, while 373(67.1%) were within normal weight and 44(7.9%) were overweight and 8(1.4%) was obese.

Near to half of the participants 262 (47.1%) did not make any daily activity. While as the Inter Quartile Range (IQR) of the activity was from (15-30) minutes per day. Most of the participants 515(92.6%) did not have chronic disease. 107(19.2%) of the participants take supplementation medicine which include iron 31(5.6%), calcium 22(4%), multivitamins 54(9.7%).

In relation to the marital status only 10 (1.8%) of the participants were married and 6 (1.1%) had a child. Regarding the family income 288(51.8%) of the participants had high income (more than 10000 Saudi Rials per month).

Table (2) Adolescent Food Habits Checklist (AFHC) Scoring

		Al Hafouf District	Al Mubarraz	Villages	Total	P value
		329(59.2%)	174(31.3%)	53(9.5%)	556 (100%)	
Food Habits Score	Range	(0-20) ^a	(0-16) ^b	(0-17) ^a	(0-20)	0.001*
	Mean ± SD	6.3±4.1	4.8±3.6	5.9±4.1	5.8±4	
	Median/IQR	5/(3-9)	4/(2-8)	5/(3-8)	5/(3-8)	

- *Kruskal Wallis test non-parametric quantitative data (expressed as median) between the three groups followed by Mann Whitney test between each two groups*

- *Superscripts with different small letters refer to significant difference between each two groups*

- **: Significant level at P value < 0.05*

Table 2 reveals that Adolescent Food Habits Checklist (AFHC) Score was low between the school girls and had the mean of $5.8 \pm 4/23$ and median of 5/(3-8). It showed also that the range of (AFHC) Score was from zero to 20 healthy responses. There was significant decrease in the (AFHC) Score in area 2 (Al Mubarraz) in compared with area 1 and 3 (Al Hafouf and Villages).

Table (3) Correlation between Food Habits Checklist (AFHC) Score and General Characteristics of the Sample Population

All cases	Total score	
	r	P value
Age (P)	0.103	0.016*
Height (P)	-0.034	0.422
Weight (P)	0.088	0.037*
BMI (P)	0.111	0.009*
Minutes/day (P)	0.189	0.001*
Activity (S)	0.185	<0.001*
Chronic disease (S)	-0.031	0.466
Supplementation (S)	-0.078	0.066
Children (S)	-0.013	0.759
Marital Status (married) (S)	-0.046	0.279
Income (S)	-0.033	0.435

- (P) Pearson's correlation

- (S) Spearman's rho correlation

- *: Significant level at P value < 0.05

Habits Checklist (AFHC) Score and other factors in all participants regardless the area; There was significant positive correlation between the (AFHC) score and age, weight, BMI, activity and minutes /day, otherwise the correlations with other factors were insignificant.

Table 3 demonstrates the correlation between Food

Table (4) Correlation between age group and (AFHC) Score

		14-16 years Preliminary School	> 16 years High School	P value
		N=333	N=223	
(AFHC) Score	Range Mean \pm SD Median/IQR	(0-20) 5.4 \pm 3.8 5/(2-8)	(0-20) 6.4 \pm 4.3 5/(3-9)	0.011*
(AFHC) Score percentage	\leq 50% > 50%	309(92.8%) 24(7.2%)	196(87.9%) 27(12.1%)	0.050*

Table 4 illustrates the range of (AFHC) Score was between 0-20 for the two-age group and the mean was 5.4 \pm 3.8 out of 23 in preliminary schools, and 6.4 \pm 4.3 in high school. Most of the participants (92.8%) had (AFHC) score below 50% (11 or less out of 23) in preliminary schools and 196(87.9%) in the high school. Food habits become little bit healthier in late adolescent in high school. There was significant positive correlation between the (AFHC) score and age. It was clear that adolescent food habits improve by age.

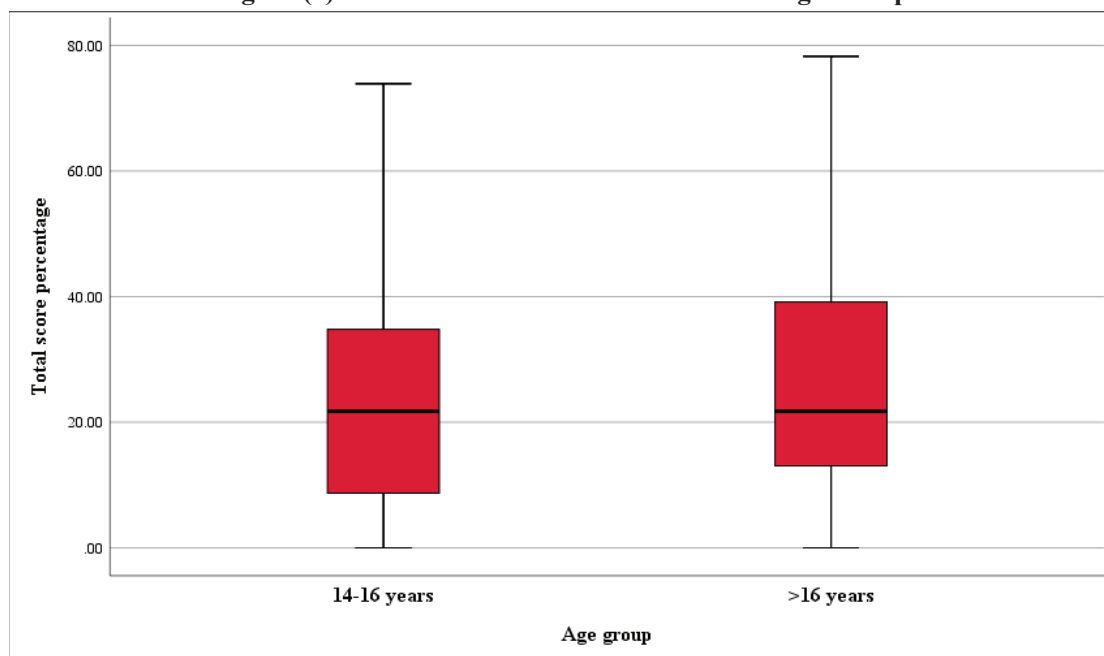
Figure (1): Adolescent Food Habits Score with Age Group

Figure (1) The box plot utilizes the median, the estimated quartiles, and the lowest possible and highest data points to express the degree, spread, and regularity of a dissemination of records values. The box plots showed that the median of food habits checklist score seems to be the same in the two-age groups. The lower quartile and the upper quartile for the 'high school' participants scores are all above the matching values for the middle school participants score.

Discussion

Our study aimed to assessing the overall dietary “Food” habits of adolescent girls. Also, to assess the relationship between obesity and food habits and physical activity patterns in adolescents.

The present study detected that the mean of body mass index between adolescents was 21.1 ± 3.5 and overweight and obesity considered between (7,9%) and (1.4%) respectively. Compared to findings from the study in United Arab Emirates, by Ng S(b), who found that between Emirati teenagers (20.5%) of females are overweight and (19.7%) are obese. Also, the Emirati study showed that the prevalence of overweight rose among Emirati adolescent girls to rich(21%) and obesity has risen dramatically^[15]. These results may reflect that other Arabian Gulf countries have also observed similar or higher unhealthy food habits between teen agers.

The present study showed that (47.1%) of the adolescent did not make any daily physical activity. While range of the activity was from (15-30) minutes per day. It was supported by the study conducted by Ng S (b), which reported that physical activity levels are low among Emiratis, especially among females^[15]. The study found that only 41% of Emirati women carry out mild or high-level of exercise, contrasted with 82% of U.S. females^[16]. In the same line, the study of Kherkheulidze M, who stated that the school age students play active games only 20-30 minutes per day^[17]. These results were in contrast with Al Hazaaet al, study, who found that 65% of Saudi women had a daily base of physical activity and conclude that the frequency of inadequate exercise amongst Saudis matured adults is quite high^[18]. These results also supported by Kumar S, et al., who mentioned in their study that only 29% of the adolescent was engaged in regular exercise^[19]. These results may be affected by many factors like, individual, community, societal, economic and environmental factors also obstacles for sport participation, which impacted on range of physical activity per day.

Our study presented that (19.2%) of the participants take supplementation medicine which include iron (5.6%), calcium (4%), multivitamins (9.7%). It was strengthened by Musaiger A, who found that (32.3%) of participants use supplements between Saudi

schoolgirls^[20]. In another study in Saudi Arabia by Mousa O, who found that using of supplementary drug between young female was (37.8%) of them^[21]. This may reflect that adolescent in Saudi Arabia use supplements with low level of worry.

The current study confirmed that Adolescent Food Habits Checklist (AFHC) Score was low between the schoolgirls and had the mean of $5.8 \pm 4 / 23$. This result supported by the results of Noronha D, study which showed that the adolescent athletes showed low levels of nutrition knowledge^[22]. This will has many effects on adolescent life and health.

It was shown from the present study that (92.8%) of the participants had (AFHC) score below 50% (11 or less out of 23) in preliminary schools and (87.9%) in the high school. It was clear that adolescent food habits improve by age. These styles towards unhealthy diets in Saudi Arabia have also been reported in the study of Musaiger A, who found that the girls in general practiced unhealthy dietary and lifestyle habits^[20]. On the same line, Alessandro V. et al, who reported the difference in knowledge was higher in the high schools than in the middle schools about nutrition^[23].

In the same line the study of Alavi M, which mentioned that the most school children (54.4 %) had mild accurate nutritional behavior, as well as the rate of students with exceedingly inaccurate nutritional performance were lowest possible (2.6 %)^[24]. Another study of Kherkheulidze M found that the general level of understanding associated with rich resources of nutrients was inadequate between school students^[17]. Certainly, the individual level factors such as age and educational level affect the nutritional habits.

The present study revealed that there was significant positive correlation between the (AFHC) score and age, weight, BMI, activity and its duration /day otherwise the correlations with other factors were insignificant. This result was supported by Musaiger A, who mentioned in another study that the significant differences were found between eating habits and physical activity^[25]. Conversely, Muammar MN, cited that there were no significant differences between BMI category and adolescent dietary pattern or lifestyle^[26]. These results may reflect that Saudi Arabian female adolescents don't

have enough knowledge level about healthy nutritional habits.

The current study showed that the median of food habits checklist score seems to be the same in the two-age groups. The lower quartile and the upper quartile for the 'high school' participants' scores are all above the matching values for the middle school participants score. These results were in the same line with Skagegård, et al, who reported that the changes in nutritional habits between the age 15 and 17 were smaller than between age 17 and 21^[27].

The study results may be affected by difficulties to involve in sport activities, spending a lot of time indoors, and snacking on unhealthy foods and unaware of healthy food habits.

Conclusion

The Arabian Gulf countries have undergone a speedy shift from an old-fashioned semi-urbanized life to a new modern living with linked increase in the occurrence of overweight, and additional metabolic complications. The current study reinforced that Adolescent Food Habits Checklist (AFHC) Score was at a low level among the schoolgirls. Near to half of the adolescent did not make any daily activity. While range of the activity was from (15-30) minutes per day.

List of abbreviations

AFHC: Adolescent Food Habits Checklist

BMI: Body Mass Index

IQR: Inter Quartile Range

WHO: World Health Organization

Consent for Publication

Approval from the College of Applied Medical Sciences Research and Ethical Committee.

Availability of data and material

The data utilized to support the results of the research are accessible with the corresponding author upon request.

Competing Interests: We declare no competing

interests.

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Effect of Guided Imagery on Pain and Anxiety in Post Cardiac Surgery Patients in First Ambulatory Stage

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Abstract

Background of the Study: Multiple researches have shown that an array of mind body therapy e.g. imagery, hypnosis, relaxation when employed pre-surgically, can improve recovery time and reduce pain during invasive medical and surgical procedure.¹ Pain and anxiety are significant complaints among patients after cardiac surgery. Guided imagery can be an effective intervention when used as a therapeutic modality for a variety of symptoms and conditions. It can improve health and enhance well-being, particularly through the reduction of pain and anxiety.² **Aim of the Study:** so, The present study was conducted on the effect of guided imagery on pain and anxiety in post cardiac surgery patients in first ambulatory stage. **Method:** a quasi experimental study in selected hospitals of a metropolitan city. A total 50 (25 in each experimental and control group) were included through non-probability purposive sampling technique. The tools used in the study were Numerical rating scale and critical care pain observation checklist for pain Beck Anxiety Inventory for anxiety followed by opinionnaire about guided imagery. **Result:** frequency and percentage method shows pre-intervention scores (NRS= 76%, CPOT= 96%) 1st post-intervention scores (NRS=48%, CPOT=24%) 2nd post- test intervention scores (NRS=44%, CPOT=44%,BAI= 52%) in experimental group and in control group before receiving standard care (NRS=96%, CPOT=96%), 25 minutes after receiving standard care on bed (NRS= 84%, CPOT= 92%), 25 minutes after receiving standard care on chair (NRS= 80%, CPOT= 92%,BAI= 72%)

Key Words- Guided Imagery, Pain, Anxiety, First ambulatory stage, Cardiac surgery.

Introduction

Oxford Dictionary defines pain as a highly unpleasant physical sensation caused by illness or injury. Unrelieved pain can delay healing, alter immune function, increase stress and cause anxiety, depression, general physical and psychological decline and economic hardship, hence measure need to be taken to relieve patient from pain and anxiety during the postoperative phase.

Dr. Petsikas and his colleagues called 100 patients six to 18 months after they underwent CABG with sternotomy at their institution in 2011. Thirty patients (30%) reported chronic post-sternotomy pain. The researchers defined chronic post-sternotomy pain as pain at the surgical site that persisted for six months or more and was distinct from preoperative pain. Many studies have shown that anxiety in post cardiac surgery patients

leads to increase in morbidity and death rates, so it is a main concern to relieve pain and anxiety in post cardiac surgery patients to improve the better health outcome.³

Guided imagery therapy is a cognitive behavioural technique. It is a gentle powerful technique more often used to promote relaxation to provide therapeutic benefits including lowering blood pressure, managing pain, reduce stress and anxiety, and even boosting immune system.⁴

A randomized control clinical trial on effects of relaxation and guided imagery on knee strength, reinjure and pain following anterior cruciate ligament reconstruction was conducted by Cupal, Deborah D; Brewer and Britton W.

The result indicated that significantly greater knee strength and significantly less reinjure, anxiety and pain for treatment group participant at 24 weeks post-surgery than for than placebo for control group participants were reported.⁵

American Holistic Nurses Association (AHNA) supports the integration of CAM into conventional health care to enable the client to benefit from the best of all treatment available. In their provision of holistic care, nurse employs practices and therapies from both CAM and conventional medicine.

Problem Statement

A Quasi Experimental study on the effect of Guided Imagery on pain and anxiety in post cardiac surgery patients in first ambulatory stage in selected hospitals of a metropolitan city

Objectives

1. To assess the level of pain in post cardiac surgery patient from experimental group before and after providing guided imagery
2. To assess the level of pain in post cardiac surgery patient from control group before and after providing standard care.
3. To assess the level of anxiety in post cardiac surgery patient from experimental group after providing guided imagery
4. To assess the level of anxiety in post cardiac surgery patient from control group after providing standard care
5. To compare the level of pain in post cardiac surgery patient in experimental group and the control group before and after providing guided imagery.
6. To compare the level of anxiety in post cardiac surgery patient in experimental group and the control group after providing guided imagery.
7. To associate pain scores with selected demographic variables.
8. To associate anxiety scores with selected demographic variables.

9. To elicit opinion of patients about the guided imagery.

Methods and Materials

A quasi experimental quantitative approach is adopted by the investigator for the accomplishment of the present study, 50 post cardiac surgery patients (n=25 in each group) during first ambulation period, chosen by Non probability purposive sampling technique in a critical care unit of a selected multispeciality tertiary care hospital. The tool used are standardized scales ; Numerical rating scale, Critical Care Pain observation checklist for pain , Beck Anxiety Inventory for Anxiety and pre-test post-test control group design is used as the investigator assess the pain level in both experimental and control group followed by the implementation of first session of intervention for 15 minutes in experimental group and standard care received in control group. Later first post test had been taken followed by patients are ambulated on chair then second session of intervention had been given in subjects of experimental group and standard care received by control group. second post test was taken after 10 minutes of second session.

Results

The findings shows that-

Level of pain (NRS) in subjects of control and experimental group-

In experimental group

- Pre test, majority 76% subject had moderate pain.
- First post test- Mild and moderate pain level as 52%and48% respectively.
- Second post test -Majority 56% subject with mild pain, 44% with moderate pain.

In control group

- Pre-test- Majority 96% subjects had moderate pain.
- First post test – Majority 52% of subjects had moderate pain

· Second post test - Maximum 80% subjects had moderate pain

Level of pain (CPOT) of control and experimental group-

In Experimental group-

- Pre test- 96% subjects had moderate pain
- First post test- 76% subjects with mild pain , 24% subjects with moderate pain
- Second post test- 56% subjects had mild pain, 44% with moderate pain.

In control group-

- Pre-test- majority 96% subjects with moderate pain
- First post test score - 92% of subjects with moderate pain
- Second post test findings were similar to first post test results.

Level of anxiety in experimental and control group after intervention on chair-

- In the Experimental group, 48% subjects with

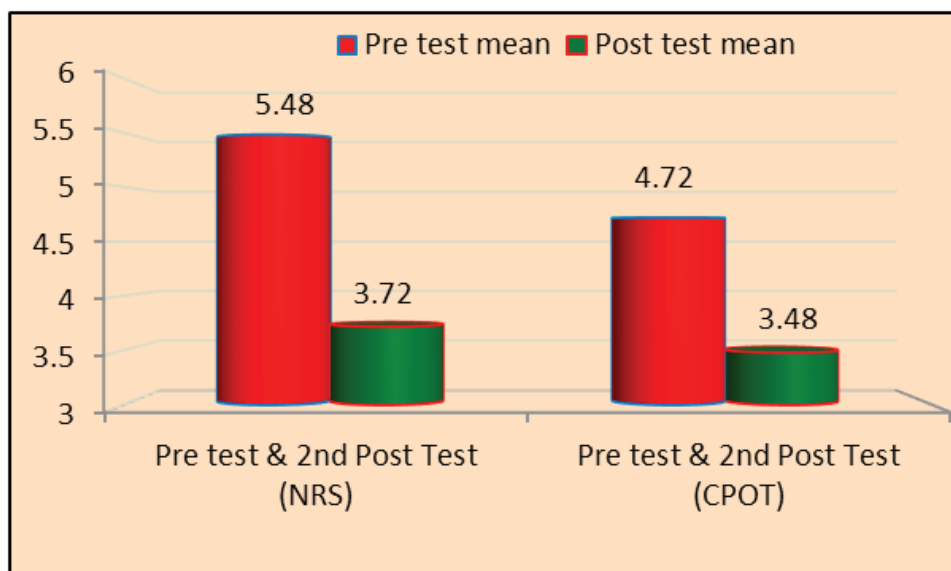
low anxiety followed by 52% with moderate anxiety.

- In the Control group, most subjects (72%) were in moderate anxiety level.

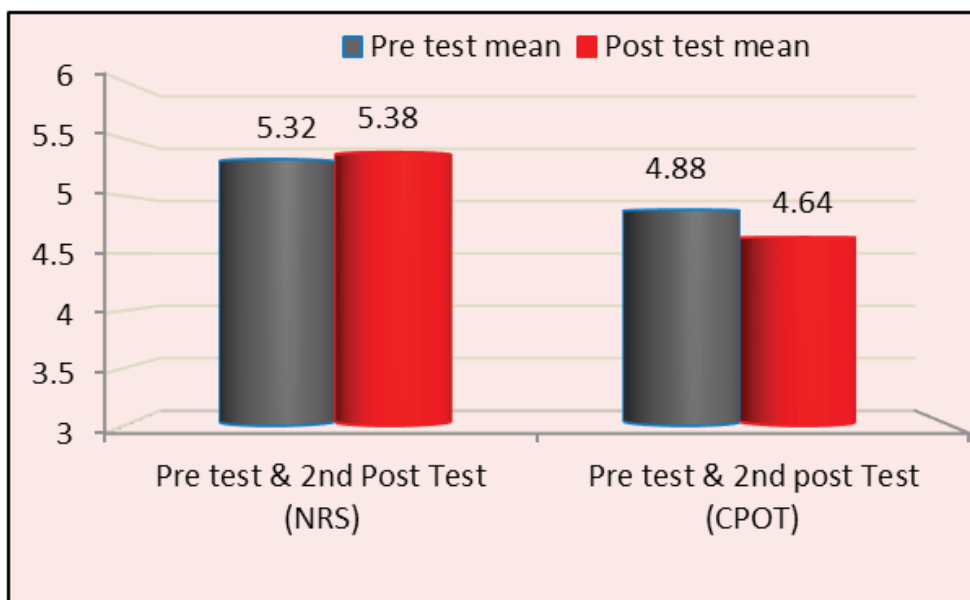
Comparison of pre and post test mean scores between experimental and control group for pain and anxiety- Mann-Whitney test shown mean scores of pain in experimental group was less (NRS=3.72, CPOT=3.48 ≤ NRS= 5.38, CPOT= 4.64) than the control group. Anxiety mean score in experimental group was less (22.96 ≤ 30.48) than the control group after the intervention, hence it proves that the guided imagery is an effective intervention in reducing pain and anxiety level.

Association of demographic variables with anxiety and pain in experimental group and control group- ANOVA shows that there is association of anxiety with regard to age in control group and found anxiety mean scores of 18 – 40 years age group is less (20.0 ≤ 34) than of 41 – 60 years.

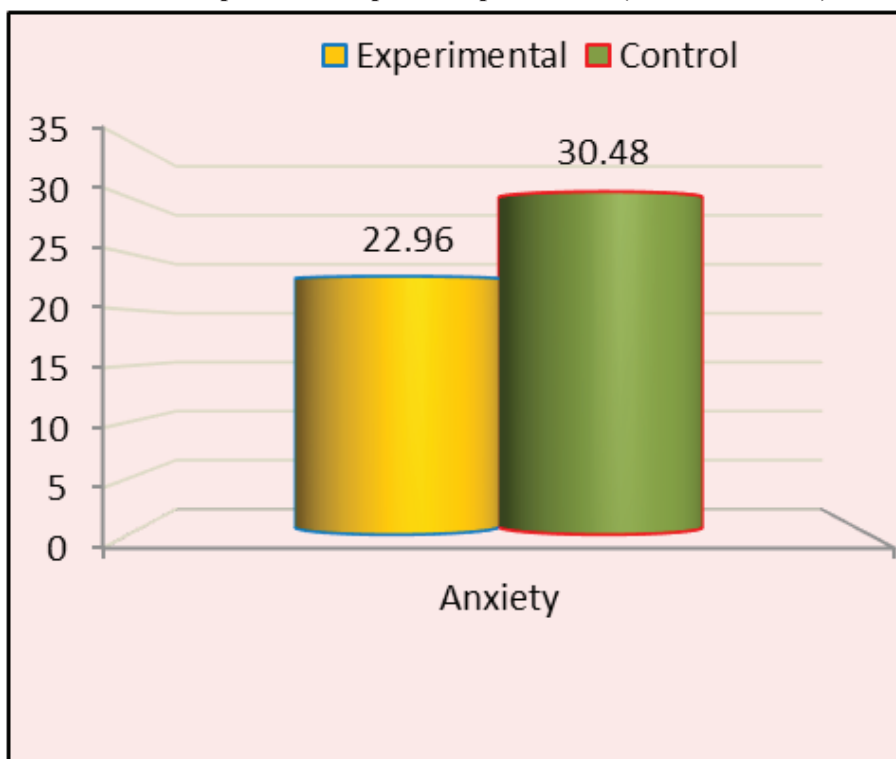
Assessment of opinionnaire of Guided Imagery in experimental group- Maximum subjects responded that they feel less pain after guided imagery, would like to use guided imagery for my next ambulation and will recommend this therapy to others with 23 (92%), 24 (96%) and 24 (96%) subjects respectively



(1) Comparison of means of pre-test and post-test pain scores (NRS and CPOT) in Experimental group



(2) Comparison of means of pre-test and post-test pain scores (NRS and CPOT) in control group



(3) Comparison of means of anxiety scores between control and experimental groups

Discussion

Present study shows that the guided imagery is helpful in reducing pain and anxiety. A similar study was done by Deborah Schwab, Dana Davis, MPH, Tracy B, Lucy A et al. in 2007 to describe the pre-surgical guided imagery program and assess its impact on

surgical outcome, patient satisfaction and cost saving. The retrospective study was conducted in Blue Shield of California for 905 samples. The result shown that the intervention yield 74% adoption rate with respect to adoption of the program and also reported significant reduction in anxiety (before listening 47% shown

high or very high anxiety and after intervention 1.6% shown high or very high anxiety) , higher satisfaction, a shorter hospital stay (8% reduction, $P=.07$) reduced pharmaceutical cost (14% reduction, $P=.181$), average saving was \$2003 per procedure and additional finding like pain anticipation of 57% patients responded less experience of pain than the expected

A study done by Pinto PR1, McIntyre T, Ferrero R, Almeida A et al. to examine the joint role of demographic, clinical, and psychological variables as predictors of acute postsurgical pain and anxiety in patients undergoing total knee arthroplasty and total hip arthroplasty in 2013. A significant positive correlation between postsurgical anxiety and acute pain was also confirmed. Whereas in the present study, it is found that there is no correlation between pain and anxiety in post cardiac surgery patients of control and experimental group as the Pearson correlation method shows the calculated ' r ' value is 0.179 and 0.148 respectively which is less than the Pearson ' r ' table value of 0.05, however it is noteworthy that the type of samples in the both the studies vary and more studies may be needed to further establish the correlation between pain and anxiety among post surgical patients.

Conclusion

Pain and anxiety among post cardiac surgery patients increase the morbidity and death rates. The present study

brought into light that guided imagery helped in reducing pain and anxiety in post cardiac surgery patients during their first ambulatory stage which helped to enhance the health seeking behavior in patients and hasten the recovery. Investigator recommends the inclusion of guided imagery in the hospital policies to improve the nursing services.

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Relationship between Mother's Status Too Young, Too Old, Too Close, Too Much (4T), and Contraceptive Use with Incidence of Maternal Mortality

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Abstract

Maternal Mortality Rate in Bojonegoro Regency in 2019 ranked second in East Java, namely 146.64 per 100,000 Live Births. Meanwhile, in the first semester of 2020, there were 24 maternal deaths. This research was conducted to see the relationship between the mother's status is too young, too old, too much, and too close (4T) to Maternal Death. This study analyzed quantitative secondary data for the first semester of 2020 in Bojonegoro Regency using the Risk Ratio (RR) calculation with a significance level of 95% CI. A mother with age too old will likely cause maternal death with RR= 0.443. Mothers with too many children have a risk of dying with RR= 3.153. A mother with the child's birth spacing is too close has a risk of dying with RR= 1.05. Analysis of maternal mortality based on mothers with 4T who use contraception is that they risk breaking with RR = 19.3, 5. The status of mothers with 4T can be a risk factor for maternal mortality, so it is necessary to monitor and prevent it with a family planning program.

Keywords: *Mother's Status, Too Young, Too Old, Too Much, Too Often, Maternal Mortality, Family Planning*

Introduction

Mother too young, too old, too often, too many children abbreviated as a mother with 4T. The first 4T mothers are mothers who get pregnant at a too young age; that is, they become pregnant when they are less than 20 years old. Second, mothers who get pregnant at too old are pregnant at more than 35 years. Third, mothers whose pregnancies are too close to each other; that is, the distance between their children's births is less than two years and too frequent. Fourth, mothers who have children live more than 3 or 4 children. Mothers with 4T can also cause maternal death due to various complications they experience¹. In Bojonegoro Regency,

in the first semester of 2020, there were 24 maternal deaths, among which were caused by mothers with 4T who did not use contraception.

There are three risk factors for the determinant of maternal mortality, namely the proximate determinant, the intermediate determinant, and the far determinant². Close determinants are direct factors that can cause maternal death, including complications experienced by mothers during pregnancy, childbirth, and the puerperium—for example, bleeding, eclampsia, infection, uterine rupture, and prolonged participation. The determinants of maternal health status are reproductive status, access to health services, healthy behavior, and other unknown or suspected factors. Maternal health status includes nutritional status, history of pregnancy complications, previous history of labor, and maternal illness history. Reproductive status consists of parity, age, and birth spacing. Access to health services includes the availability of health facilities and access to affordability, distance, and time for healthy behavior, including antenatal care (ANC)².

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Remote determinants include the mother's status in the family, the mother's position in the community, and the family's status in the community. The mother's status in the family includes education, occupation, marital status, and mother status in society.

According to East Java Province's health profile in 2019, Bojonegoro Regency is the second-highest in East Java after Situbondo, which is 149.66 per 100,000 live births, and in 2020 the first semester, there were 24 maternal deaths and 9,119 live births. A total of 24 maternal deaths were partly mothers with 4T. Meanwhile, in the first semester of 2020, the number of mothers was 212,843, and mothers with 4T were 117,983 people. This study aims to analyze mothers' relationship with 4T and contraceptive use with maternal mortality in Bojonegoro Regency in 2020, especially in January to June 2020.

Materials and Methods

This research design is a non-reactive study because the researchers conducted quantitative secondary data analysis based on monthly report data and incidental reports from the Bojonegoro District Health Office from January to June 2020. This study was to describe the relationship between mothers with 4T and contraceptive use with the incidence of maternal mortality in Bojonegoro Regency. The sample was 117,983 mothers with 4T. The total number of mothers with 4T who died were 12 mothers, and those who were still alive were 117,971 mothers. The analysis of data using RR calculation on the Epi-info application with a significance level of 95%. If there is no confidence interval between the range of 1.0, it means that there is a significant relationship.

Results and Discussion

Table 1: Analysis of maternal mortality with 4T based on mother's age too young (< 20 years)

Mothers' Age Too Young	Died	Not Died	Total	RR (95% CI)
Yes	0 (0,0)	2,583 (2.6)	2,583 (2.7)	0,000
No	26 (100.0)	94,836 (97.4)	94,860 (97.3)	
Total	26 (100.0)	97,419 (100.0)	97,443 (100.0)	

The analysis of maternal mortality with 4T based on the mother's age too young (< 20 years) showed that mothers with 4T who were too young did not die. None of the mothers with 4T who died were too young, with a Risk ratio (RR) of 0.00. These results indicate the value of RR < 1 which means it has a protective effect against disease. The protective effect here means that mothers with 4T who are too young (< 20 years) have no chance of causing maternal death (Table 1).

Women who are too young (aged less than 20 years) cannot be physically ready to get pregnant or undergo a reproductive process. First, pregnant women at ≤ 16 years of age have a high risk of experiencing maternal death because the mother's uterus and pelvis have not yet grown to adult size. As a result, the safety and

health of the fetus in the womb is doubtful. Besides, the mother's mental state is not mature enough, so that her skills in self-care and her baby are also doubtful. This study's results are consistent with research in West Sumatra Province, Indonesia, which states that maternal mortality is in West Sumatra occurs in mothers who give birth at age < 20 years³. This study's results following research said that age less than 20 years has 1.6 times the risk of causing maternal death⁴. This study's results follow the research in Bondowoso District, East Java, which states that maternal age is not an indirect maternal mortality indicator. According to the results of this study, the indirect indicator of maternal mortality is the completeness of antenatal visits, pregnancy risk factors, maternal education, and maternal employment status⁵. The research results in Korea also mention

that too young mothers are not a determinant of maternal mortality. This study in Korea states that the determinants of maternal mortality within six weeks or one year after childbirth are maternal age between 35-39 years, living in rural areas, giving birth by cesarean section, and having comorbidities ⁶.

Table 2. Analysis of 4T maternal mortality by age too old (< 35 years)

Mother 4T Too old	Died	Not Died	Total	RR (95% CI)
Yes	8 (33.3)	107,163 (53.1)	107,171 (53.0)	0.443
No	16 (66.7)	94,844 (46.9)	94,860 (47.0)	
Total	24 (100.0)	202,007 (100.0)	202,031 (100.0)	

Based on the analysis of maternal mortality with 4T based on age too old (< 35 years), there were 8 Pus 4T mothers or 33.33% who died because they were old or more than 35 years old. The statistical analysis results obtained a Risk Ratio (RR) of 0.443, which means that the RR value < 1 which means it has a protective effect against disease. The protective effect here is that mothers with 4T who are too old (> 35 years) will have the opportunity to cause maternal death (Table 2).

Women whose first pregnancy is ≥ 35 years of age also have a high risk of experiencing maternal death during pregnancy, childbirth, and postpartum. In this age range, the disease in the mother is manageable, and the womb organs age. The birth canal also gets stiffer. There is a greater chance of obstructed labor and bleeding. Being too old can cause complications in pregnancy,

childbirth, and the puerperium. According to research in Finland states that being pregnant at an old age will cause most eclampsia, indirectly leading to maternal death ⁷. Based on research in West Sumatera Province, Indonesia, maternal mortality is likely considerable in mothers who give birth at more than 35 years³. A study in Sukoharjo District, Central Java Province, Indonesia, shows that those over 34 years of age have 1.6 times the risk of causing maternal death ⁴. Research in Korea also mentioned that mothers aged 35-39 years, living in rural areas, giving birth by cesarean section, and having comorbidities in the mother are determinants of maternal mortality within six weeks or one year after delivery ⁶. Another study that analyzed data from 144 countries also stated that the highest risk of maternal death was in women aged > 30 years ⁸.

Table 3. Analysis of maternal mortality with 4T based on too many children (> 4 people)

Mothers with 4T Too Many Children	Died	Not Died	Total	RR (95% CI)
Yes	3 (12.5)	4,295 (4.3)	4,298 (4.3)	3,153
No	21 (87.5)	94,839 (95.7)	94,860 (95.7)	
Total	24 (100.0)	99,134 (100.0)	99,158 (100.0)	

Based on the analysis of maternal mortality with 4T based on the number of children too many or more than 4 children, three mothers with 4T mothers or 12.5% died because there were too many children or more than 4 children. The analysis results obtained a Risk Ratio (RR) of 3.153, which means that the value of $RR > 1$ which means it has a very significant relationship. The point is that mothers with 4T who have children more than 4 children have a risk of dying three times than mothers with 4T who have children less than 4 children (Table 3).

Too many children are likely to interfere with the health of mothers who are pregnant or after delivery.

Too often, giving birth can harm a mother, so that the risk of death increases. If you give birth too often, there may be bleeding during delivery. Bleeding occurs due to failure to contract the uterus or what is commonly called postpartum bleeding. The increasing number of children who are not limited is expected to increase complications⁹. Research in West Sumatra Province, Indonesia, shows that the proportion of maternal deaths due to bleeding occurs more in mothers with parity > 3 children than mothers with parity < 3 children³. This study's results are also following the results of a longitudinal study in Israel, which states that mothers with children 5-9 and > 10 people have a higher mortality rate than mothers with 2-4 children¹⁰.

Table 4. Analysis of maternal mortality with 4T based on the birth distance of children too close (< 2 years)

Mother with 4T Too Close	Died	Not Died	Total	RR (95% CI)
Yes	1 (4.2)	3,930 (3.98)	3,931 (4.0)	1.05
No	23 (95.8)	94,837 (96.0)	94,860 (96.0)	
Total	24 (100.0)	98,767 (100.0)	98,791 (100.0)	

Based on maternal mortality with 4T, based on the number of children who are too close to less than four years, there is one mother or 4.17%. (< 20 years). The majority of 4T mothers who died had children more than two years apart between this pregnancy and their previous child. The analysis results obtained a Risk Ratio (RR) of 1.049, which means that the value of $RR > 1$ which means it has a very significant relationship. The point is that mothers with 4T who has a distance of children who are too close or less than 2 years have a risk of dying 1 time than mothers with 4T who span more than two years (Table 4).

The birth spacing between one child and any other child less than two years of age may increase maternal death risk. At intervals of less than 24 months (too frequent), delivery is a high-risk group for postpartum hemorrhage, maternal morbidity, and mortality. The recommended distance between pregnancies is generally

at least two years to allow the woman's body to recover from the extra demands of pregnancy and lactation. The pregnancy distance at risk or the distance between birth and the smallest child is less than two years because the mother's physical and uterus still needs enough rest, not to mention the mother's condition who is still breastfeeding. Besides, the distance between births that is > 10 years is as if facing the first labor again. This study's results are consistent with research in Sidoarjo Regency, East Java Province, Indonesia, which found that most birth spacings were less than two years causing physical health and the mother's uterus still needed enough rest and the mother was still breastfeeding¹¹.

This study's results are also consistent with research in the Special Region of Yogyakarta, Indonesia, which states that birth spacing < 2 years is significantly associated with preeclampsia incidence. This result means that the closer the birth distance between children,

the greater the risk of preeclampsia¹². However, a literature review states that long birth spacing (> 5 years) also increases the incidence of preeclampsia¹³. The results of another study in Norway showed that having two to three children with an interval between single

births of less than 18 months, and mothers of twins have an increased risk of death in middle age and early age compared with parents with a delivery interval of 30-41 months¹⁴.

Table 5. Analysis of maternal mortality based on contraceptive use

Mother with 4T	Died	Not Died	Total	RR (95% CI)
Not using contraception	9 (75.0)	15,863 (13.6)	15,872 (13.5)	19.3
Using contraception	3 (25.0)	102,108 (86.4)	102,111 (86.5)	
Total	12 (100.0)	117,971 (100.0)	117,983 (100.0)	

Based on the RR (Risk Ratio) analysis, it gets a value of 19.3, which means that the value of RR > 1 has a very significant relationship. The point is that mothers with 4T who do not use contraception have a risk of dying 19.3 times than mothers with 4T who use contraception (Table 5).

Postpartum mothers and couples of childbearing age are the direct targets of the family planning program. They are expected to gradually become active participants in sustainable family planning to affect decreasing fertility directly. Active participation of couples of childbearing age and postpartum mothers using contraception is a form of responsibility and concern for their reproductive health and healthy and safe sexual behavior for themselves, their partners, and their families. Mothers with 4T are significantly at risk of experiencing complications or complications during pregnancy, childbirth, and postpartum, so they need to use postpartum contraception to spacing, delay, or terminate the pregnancy. This study's results are consistent with research in Cilacap Regency, Central Java Province, that mothers who have never used contraception have a 33.1 times greater risk of experiencing maternal death than mothers who take family planning programs¹⁵.

This study also follows the research in Tajikistan, which found that women using modern contraceptives were half as likely to limit births if they already had three or fewer children than women using traditional

contraceptive methods or women who did not use contraception¹⁶. The analysis of 146 Demographic and Health Surveys from 1990-2005 shows that the indirect effect of using contraception can reduce a country's maternal mortality rate by an estimated 450 points during the transition from low to high-grade contraceptive use. The increasing use of modern contraceptives will continue to reduce maternal mortality in developing countries¹⁷.

Conclusion and Acknowledgment

The incidence of maternal death is caused by proxy determinants or disease factors suffered by the mother during pregnancy, childbirth, and the puerperium. 4T maternal status is also a risk factor for maternal mortality. The mother's status 4T can also be caused by the mother's non-compliance in using contraception to regulate or delay the desire to have children, especially mothers with 4T status. For this reason, health workers need to be alert to pregnancy complications. And it is necessary to collect data on PUS 4T to make it easier to monitor and provide counseling related to threats to 4T mothers' health status if they are pregnant, in labor, and after delivery.

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Conflict of Interest: No conflicts of interest to declare.

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Anxiety and Coping Strategies of Students with Sickle Cell Disease: Three-Year Cross-Sectional Study

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Abstract

Introduction: Sickle cell disease (SCD) is the most prevalent inherited blood disorder worldwide and estimated 18 million Indians have sickle cell trait¹ and 4 million have sickle cell disease². The study aims to find out the prevalence of sickle cell disease among university students and to identify coping strategies, they have adopted by them to deal with anxiety.

Methods: A retrospective cross-sectional survey was done among 2126 students over duration of three years to identify with simple random sampling technique followed by purposive sampling technique. Diagnosis confirmed by DTT and haemoglobin Electrophoresis before assessing the anxiety level and coping strategies using Hamilton-Anxiety Scale and Brief COPE scale through interview technique.

Result: Total 143(6.73%) students was found sickling positive while 63(44%) was suffering with mild to moderate level of anxiety and 52(36%) was in the range of moderate to severe. Among them 53(46.09%) has used approach coping strategies whereas 62(53.91%) preferred avoidant coping strategies.

Conclusion: Study finding suggest that students with SCD experience anxiety and they developed coping strategies to deal with anxiety. Proper guidance will be helpful for developing effective coping strategies to reduce level of anxiety.

Keywords: Anxiety, Coping Strategies, Sickle cell disease, Students.

Introduction

Sickle cell disease is an autosomal the multi system blood disorder and characterized by red blood cells, that assume an abnormal, rigid, sickle shape, which aggregate and disrupt blood flow in small vessels^{1,2}. Sickle gene is mainly found in people originated/migrated from Malaria endemic areas of Africa and Asia³. As per

ICMR survey the estimated prevalence of sickle cell disease varied from 5 to 34% among different states of India, where WHO stated that mortality is much higher in many sub-Saharan countries⁴. Gujarat is reported to have at least 9,00,0000 sickle cell positive people in population survey 2011⁵.

The common suffering of a student with sickle cell disease vary from painful episodes because of blocking small blood vessels, frequent jaundice, bone ache and body ache, fever, enlarged spleen, retarded growth, frequent infections, dactylitis (hand-foot syndrome)⁷. Teenage years may make this even more difficult as they begin to understand the gravity of the problem and may find this a bit daunting or even frightening, as they start to think about choosing a career, building intimate relationship & future employment scope⁶.

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In addition to medical complications, students with sickle cell disease go through with different emotional phases such as feeling of confusion, anxiety, fear, depression, delayed puberty, which may lead to college absenteeism, short stature and limitation on social and academic activities⁸⁻¹⁰. They become more emotionally mature and the frequency of painful crises may increase because of hormonal changes. They find it hard to keep focused in their studies and university work¹¹.

Frequent painful sickle cell crisis necessitates repeated hospitalization, leading to limitations in activities, socialization and emotional disturbances. This period can be distressing and requires lots of encouragement and support from family and friends, so that correct coping mechanisms can be developed. Having a chronic condition like sickle cell disease often creates extra demands a challenges the student's capacity to cope. A condition like sickle cell disease always needs time, energy, and financial resources to handle an unpredicted and stressful situation. Although medical system has advanced and created a great significant improvement in the survival and quality of life¹². In this study the researchers are trying to find answers to the following questions: what is the prevalence of sickle cell disease among university students in the institution? 2. Do the students living with SCD experience anxiety? 3. What are the coping strategies adopted by them? This study aims to identify anxiety and coping strategies among students diagnosed with SCD.

Material and Method

Setting and participants

This study was done in Uka Tarsadia University, Bardoli, Surat. Which is situated in a tribal belt and caters to a large number of students from the surrounding tribal population. University admits around 3000 students per year to 18 different courses conducted by it. Among them 2126 students participated voluntarily in SCD screening process. Prevalence of SCD was identified by checking the reports of 2126 students who have undergone SCD testing from 2018 to 2020. Using a retrospective cross-sectional survey design, the prevalence of sickle cell disease was identified and purposive sampling technique was used to identify anxiety and coping strategies.

Instrument & Procedure

Retrospective data of three years durations was analysed to identify prevalence of SCD. New students who volunteered for screening was tested for SCD, using bio physiological blood sample testing named dithionate tube turbidity test (DTT) in collaboration with pathology laboratory of Indian red cross society of Ahmadabad. Positive DTT samples of blood were further analysed by haemoglobin electrophoresis for confirmation of SCD. The subjects with positive SCD test was identified from the register and their contact number and email ID was collected. Each student was contacted by telephone and purpose of study was explained and verbal consent was obtained. Anxiety was assessed using Hamilton anxiety scale and coping strategies was studied using brief COPE tool. Soft copy of consent form, socio demographic data, Hamilton anxiety scale and brief COPE was sent to the subjects by mail. The subjects completed the tool and returned them in 10 days. Coping strategies has been assessed for those students, having mild to moderate and moderate to severe anxiety level and students with mild anxiety level has been excluded.

In socio-demographic tool includes age, gender, family income, year of diagnosis done and family type was included. The anxiety level measured by Hamilton-Anxiety Scale had 14 items rated on a five-point scale, which included Anxious mood, Tension, Fears, Insomnia, Intellectual, Depressed mood, Somatic(muscular), Somatic(sensory), Cardiovascular symptoms, Respiratory symptoms, Gastrointestinal systems, Genitourinary symptoms, Autonomic symptoms, Behaviour at interview. Each item rated with a score of 0 (not present) to 4 (severe) on the scale. Total range of score is 0–56, and less than 17 indicates mild severity, score between 18–24 is considered as mild to moderate severity and 25–30 moderate to severe anxiety.

The coping strategies was assessed by Brief COPE-28 scale, developed by Professor Charles S. Carver from the University of Miami has developed the Brief COPE scale and has been cited by more than 900 articles. Brief COPE scale-28 is the version of the original scale of COPE Inventory and measures 14 coping types through 28 questions. Sample opinion can be measured with two major approach, named as Avoidant and Approach Coping. Scores of the scale has been divided following

subscales. – There are total 12 items fall under Avoidant coping which are mentioned as, Self-distraction (1 and 19), Denial (3 and 8), Substance use (4 and 11), Behavioural disengagement (6 and 16), Venting (9 and 21), Self-blame, (13 and 26). The other 12 items fall under Approach coping and mention as, Active coping (2 and 7), Emotional support (5 and 15), Use of informational support, (10 and 23), Positive reframing, (12 and 17), Planning (14 and 25), Acceptance (20 and 24). There are four more items which falls under Humour (18 and 28) and Religion (22 and 27) and are neither consider as Approach or Avoidance coping. All the study instrument has been validated. Reliability of the brief COPE scale was tested by calculating the Cronbach's alpha coefficient and test-retest method with interclass correlation coefficient, where ranges are one to zero shows perfectly reliable.

Inclusion: Study included all male and female students those were diagnosed as Sickle cell disease with HbSS, HbSC, HbSBO Thal, HbSB+ Thal genotypes.

Statistics

The collected data was analysed using descriptive statistics like mean, Standard deviation and frequency. Association has been measured with inferential statistic chi square and Pearson coefficient of correlation used to assess the existing correlation.

Ethical Consideration

Permission was obtained from the university ethical committee of Uka Tarsadiya University before conducting study. Written consent was taken from students after assuring the confidentiality of the data collected.

Results

Findings of the study revealed that the prevalence of SCD was 6.24% as shown in table 1.

Table-1: Shows the prevalence of sickle cell disease among university students

Year	No of students tested	SCD positive	percentage
2018	700	72	10.29
2019	670	34	5.07
2020	756	37	4.89
Total	2126	143	6.73

Sample characteristics:

Age of the subjects varied from 18 to 25 years with a mean of 21.06 .Majority (45.45%) belonged to the age group of 22-23 years, seventy eight percent of them were males, and 35.66% of them belongs from low income group of less than Rs.10,000/month, 61.54 percent lived with their family and rest of them were staying in hostel or paying guest.

Anxiety levels: As shows in the figure-1: Majority of students 63(44%) were having mild to moderate level of anxiety, whereas 52(36%) samples were having moderate to severe level of anxiety and only 28(20%) students were identified with mild level of anxiety with a mean score 23.06 and SD 4.43.

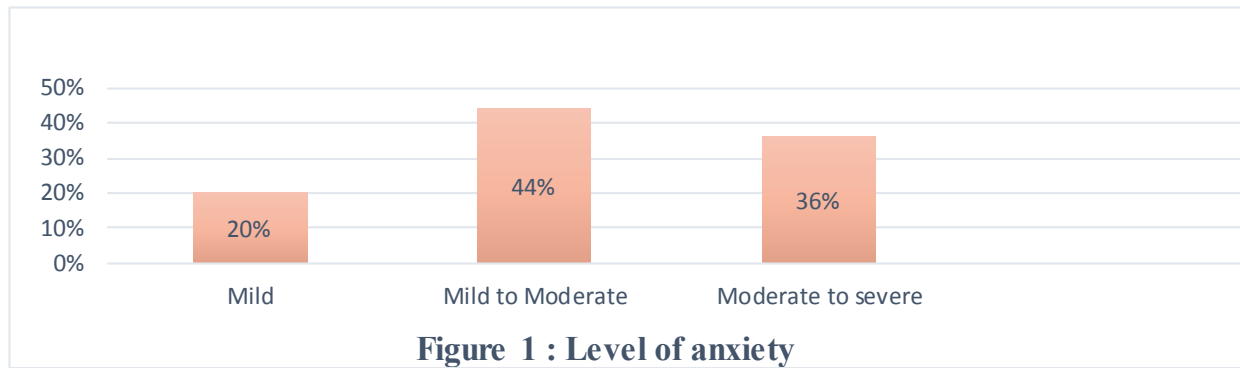


Figure-1 : Bar diagram representing the percentage distribution of the anxiety level of diagnosed students.

Coping Strategies : As shown in table 2 acceptance coping was the highest and humour was the lowest acceptance coping strategies.

Table 2: Brief Coping scale consist of 28 items with subdivision of 14 parts style score (Brief COPE-28) in samples screening positive for anxiety.

Brief COPE coping style	Mean	SD	Range
Acceptance	5.75	1.41	2-8
Self-blame	5.7	1.56	2-8
Use of Informational support	5.68	1.56	2-8
Venting	5.68	1.56	2-8
Positive reframing	5.6	1.33	2-8
Planning	5.6	1.61	2-8
Substance use	5.55	1.48	2-8
Active coping	5.48	1.35	2-8
Emotional Support	5.39	1.3	2-8
Religion	5.11	1.24	2-8
Self-destruction	5.49	1.44	2-8
Behavioural	5.45	1.51	2-8
Denial	5.38	1.55	2-8
Humor	4.79	1.37	2-7

As shown in **figure-2** Avoident coping was adopted by 53.91% of students and approach coping by 46.09% as frequently used coping strategies. In avoident coping, self blame was the highest (mean 5.7 and SD-1.56 on Range 2-8) and Denial the lowest (mean 5.38 and SD 1.55 on Range 2-8). In Approach coping Acceptance was highest (maen-5.8 and SD-1.41 on Range 2-8) and emotional support was lowest (mean 5.39 and SD-1.3 on Range 2-8).

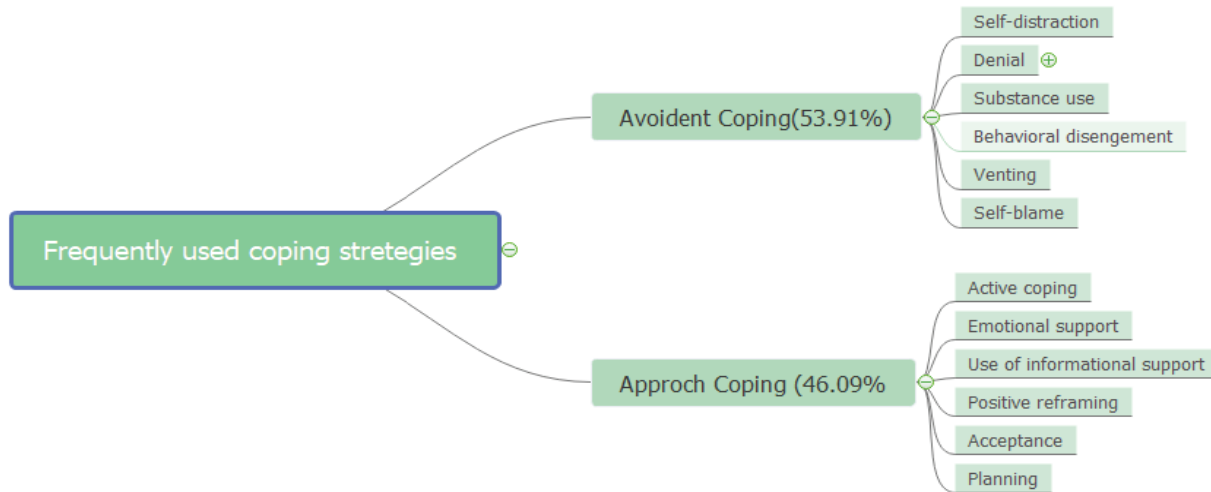


Figure 2: Categorization of the frequently used coping strategies by students to deal with anxiety.

Study reveals that there was a significant association between the anxiety level with their monthly income.

Discussions

The study finding shows the prevalence rate of sickle cell disease is 143(6.7.3%) after screening of 2126 university students. with the evidence of previous research, the prevalence rate varies from 5 % to 34 % among the population of western India ⁽¹²⁾. It was estimated that the sickle cell disease is phenotype and are mild in India than the other country like African phenotype¹³. However, study identified anxiety as a common psychological issue that the students are experiencing with the disease condition. Most of them were adjusting with anxious mood, restlessness, fear, insomnia and poor concentration related to uncertain disease process and treatment regimen.

Study shows the students were having anxiety due to pains and aches, twitching, stiffness of note, and worries related disease prognosis. The results found 53.91% students were using avoidant coping like self-distraction, denial, substance use, Behavioural disengagement, venting, self-blaming and 46.09% students were using approach coping with active coping, emotional support, use of informational support, positive reframing, acceptance and planning. Study revealed that the longer period students has been diagnosed with sickle cell disease were experiencing higher level of anxiety than

the students diagnosed recently. Further investigation is needed to understand barriers and facilitators of follow-up and identify strategies to minimize the anxiety disorder.

Limitations: The generalizability of the study results is limited among university students due to small size of sample. Moreover, some outcomes, such as pain crises at home, are self-reported and subject to recall bias.

Conclusion

The conclusion builds on existing evidence, Majority of students were suffering from mild to moderate level of anxiety, due to SCD which is a matter of serious concern. Any form of anxiety can affect the performance of students, which can reflect vigorously in later life. Study result shows the maximum use of avoidant coping approach rather than approach coping to minimize their suffering. Proper guidance & counselling will be helpful for developing effective coping strategies to reduce level of anxiety.

Recommendation:

The study sample was restricted to the university students with lack of comparison group and follow up to determine changes in coping strategies that the students are using to deal with anxiety. Therefore, a follow up study design could have been adopted based on random

sampling with a comparison group.

Ethical Approval: Permission for the project was taken from Ethical research committee, Uka Tarsadia University. Written consent was obtained from the students after motivating for the voluntary and anonymous participation.

Financial Support: This study was financially supported by a grant from RPS, Uka Tarsadia University, Bardoli, Surat.

Conflict of Interest: The authors declare that there are no conflict of interests relevant to this work.

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An Overview of Shift Work Variability among Nurses in Governmental Sectors in Kuwait: Cross-Sectional Study

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Abstract

Background: Shift work is a work schedule with a diversity of working time arrangements. The diversification of working time is significantly associated with health problems such as cancer, diabetes and cardiovascular. Shift work is considered a workplace hazard. It indicated high levels of stress and exhaustion among nurses and a low level of job satisfaction. Irregularity in working hours might compromise nurses' performance and contribute to low quality of care in health care settings.

Aim: This study aims to describe the shift work variability, the sufficiency of sleeping, general aspects of health and performance among nurses working in the governmental sectors in Kuwait.

Methods: An observational cross-sectional design was used among nurses working in Kuwait's governmental health care sectors.

Findings: A total of 329 nurses participated in this study. The majority of participants reported rotating shift work 297 (90.3%). The mean and standard deviation of sleeping hours were reported as 5.8±1.15 hours. Of them, 167 (50.8%) nurses reported falling asleep while driving after finishing their work duty. Besides, frequent feeling of fatigue was expressed by the participants 268 (81.5%).

Conclusion: The present study revealed a high level of shift work variability among nurses. Fatigue, falling asleep, and work incidences were also reported by nurses. Special attention should be given to nurses working under shift work rotation as this might affect their general health and performance. Decision makers should provide adaptation programs and apply enhancement measures to promote health and productivity of nurses in Kuwait.

Keywords: *sleeping, nurse, work performance, Shift work, workplace hazard*

Introduction

Shift work is a work schedule with a diversity of working time arrangements. Recent statistics divulge that majority of workers are engaged in irregular or rotational work patterns, including working at night

shift, weekend work, on-call work with prolonged duty hours^{1,2}.

The global changes in economics and political trends dramatically promote the demand for shift work. Previous studies showed that the diversification of working time is significantly associated with health problems such as cancer, diabetes, gastrointestinal disorders, metabolic and cardiovascular disease; besides, It has a major effect on patient's safety and job performance^{2,3}.

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Shift work is considered a workplace hazard⁴. One of the major problems resulting from shift work is sleep problems affecting individuals' quality of life and productivity. The prevalence of sleep disorders among shift-workers (48%) was significantly higher than day workers (40%). The highest prevalence of low sleep quality was observed in nurses (64%) comparing to other professions⁵. On the other hand, sleeping problems associated with shift work indicated high stress and exhaustion among nurses and a low level of job satisfaction⁶.

Furthermore, the risk of occupational stress from the variability of shift work can affect the nurses personally and increase absenteeism rates. These consequences of irregularity in working hours may compromise the patients in health care settings, contribute to low quality of care and increase the incidence of errors⁷⁻⁹. Thus, this highlights the importance for nurses to adopt strategies to cope with the demands of shift work to increase the quality of care for patients and themselves¹⁰.

The present study aims to explore the quality of sleeping among Kuwaiti nurses and the variability in working hours, including the general aspects of health and work performance. Also to assess some health habits that might be related to shift work. This study might help the decision-maker to consider the quality of life for nurses and increase their satisfaction toward the workplace.

Methodology

Population and Sampling

This study's nature is an observational cross-sectional design; This study has conducted on a sample of Kuwait nurses. The potential participants were selected from government hospitals using an electronic survey. In particular, a convenience sampling technique was applied by using a self-administered questionnaire. Invitation letters were sent to heads of each hospital's nursing department, including a link to access the electronic survey. Heads were asked to share this link with nurses who later accessed the electronic link and read a brief introduction about study aim and objective and voluntary accept to fill up a Questioner within 5 to 7 minutes. An electronic survey is a cost-effective method

of recruiting participants who might be hard to reach through traditional recruitment. Nurses from different departments can easily read the study's purpose and objective. Then, they can either fill out the questionnaire or decline.

Data Collection instruments

The data was collected using a self-administered questionnaire, several variables, and questions adopted from previously published studies^{4,11-12}. The questionnaire divided into three main sections; the first section focused on participants demographic such as age, marital and level of education status in addition to working background, which includes years of working, daily working hours and department where the participants are working, the second section concern on exploring the impact of variable-shift on general health the variables include a question about a sleeping pattern, number of sleeping hours per day, ability to perform regular exercises and frequency drinking caffeine. The final section focused on work performance. The data collection was carried out over almost three weeks. SPSS version 26 was used for statistical processing and data analysis; significance level (P-value) was considered at 0.05.

Results

Participants' Socio-Demographic and working background Characteristics

Three hundred twenty-nine nurses from the governmental hospital participated in this study by completing the electronic survey. The majority of participants are female 215 (65.3%) comparing with males comprising 114 (34.7%) of the sample. Most of the participants 310(94.2%) were married with a mean and standard deviation (SD) 2.46±1.139 as a number of children. Among participants, 120(36.5%) had diploma-level education, 193(58.7%) had a university-level education, and only 16(4.9%) had a master level of education. Only 32(9.7%) have regular working hours. Most of the participants reported that they need (34±15) minutes to reach their home after finishing their duty hours. Table 1 presents detailed information on participants' demographics and their work background

Table 1. Descriptive Statistics for Participant Demographics and Working Background

Demographics	N(%)
Gender	
Male	114(34.7)
Female	215(65.3)
Education level	
Diploma	120(36.5)
BSc	193(58.7)
Master	16(4.9)
Marital status	
Married	310(94.2)
Single	19(5.8)
number of children (Married) mean \pm SD	2.46 \pm 1.139
Work characteristics	
Department	
Critical areas	226(68.7)
Non Critical areas	103(31.3)
Shift type	
Regular working hours	32(9.7)
Rotating work shift	297(90.3)
Time until reach home in mints mean \pm SD	34 \pm 15

variability in shift work and general health-related behaviours

The mean and standard deviation (SD) of participants sleeping hours were 5.8 \pm 1.15, with 167 participants (50.8%) reported that they have fallen asleep while driving. However, a few of them 22(6.7%) reported that they use sleeping aids. On the other side, 92(28%) of participants find time to perform exercises, 17(5.2%) were smokers, and 204(62%) reported that sometimes they feel stress due to work pressure. (Table 2)

Table 2: Shift work and health-related behaviours

	N(%)
Smoker	
Yes	17(5.2%)
No	312(94.8%)
Perform exercises regularly	
Yes	92(28%)
No	237(72%)

Cont... Table 2: shift work and health-related behaviours

sleeping hours mean ± SD	5.8±1.15
Frequent of coffee or tea mean ± SD	1.98±1.5
frequent of fell Stress None sometimes Usually	1(.3%) 204(62%) 124(37.7%)
fallen asleep while driving after work shift Yes No	167(50.8%) 162(49.2%)
use sleep aids Yes No	22(6.7%) 307(93.3%)

Variability in shift work and general work performance

More than half of the participants reported that they lost their concentration, sometimes 187(56.8%), the majority reported they feel fatigued, sometimes 268(81.5%). Regarding the number of accidents that happened at the workplace, respondents reported that they had it once. Others had two or more accidents per month, as following 48(14.6%) and 12(3.6%). Days of absence per month generally was shallow. (Table 3)

Table 3. Describing work performance

	N(%)
Level of performance Loss of concentration none sometimes usually	131(39.8%) 187(56.8%) 11(3.3%)
frequent of fell fatigue none sometimes usually	19(5.8%) 268(81.5%) 42(12.8%)
accidents at work none once two or more	269(81.8%) 48(14.6%) 12(3.6%)
Days of absent per month	0.3±0.7

Discussion

Shift work is not limited to reducing the quality of sleep among nurses. However, it also has a negative impact on general health, such as increasing the indices of social dysfunction and depression¹³⁻¹⁴. The findings of this study showed that nurses in Kuwait have a low mean of sleeping hours. The majority of participants engaged in a family with a number of children, which might add an extra burden for them. Lack of sleeping is associated with a higher risk of diabetes¹⁵. Previous studies prioritize the importance of a good night's sleep. Still, it is recommended for an adult to sleep 7-9 hours per day¹⁶⁻¹⁷.

Nevertheless, workplace accidents were associated with low quality of sleep among nurses, as indicated in the previous studies¹⁸. This is expected to happen among nurses in Kuwait since most of them reported irregularity in working hours, which affects the regularity of sleeping hours among them; in whatever way, accidents in health care setting might have a direct thread the patient life. However, in this study, nurses exhibited frequent feeling fatigue and reported they had an accident at work. These results highlight important issues related to patient safety, which might be a risk if not enough attention has been considered. Thus, Kuwait's decision-maker should pay close attention to eliminate any possible risks associated with variability in shift work among nurses in Kuwait. It was also argued that lack of physical activities has a negative impact on health. This study presents that only a few nurses have time to do regular exercises. The investigation also indicated that the risk of variability in shift work might be beyond the healthcare facility setting; falling asleep while driving is one of the unfavourable problems reported by the participant. However, the current study conducted over a short period, the study population is relatively small, preventing representing the actual population. On the other hand, the author could not present additional analysis due to insufficiency in the study sample between groups. Further investigation is recommended to understand the association and the impact of variability in work shifts on nurses' different domains. In addition, this study was limited to participant who has time to access the the survey link with leaving the views of other nurses who were busy during the time of study conduction unexplored.

Conclusion

The present study revealed a high level of variability in work shift among married nurses and the demand for proper choice of the dormitory or hostel that help nurses find more time for rest and reduce the time needed to reach their houses. The findings suggest that special consideration and attention should pay to nurses working in the critical area as their sleep quality might directly affect patient care. Therefore, coping programmes related to variability in work shifts should target this stratum of workers and increase hospital administrators' awareness about the impact of shift work on nurses' quality of life, which finally might affect patient care. Thus, suggest that the decision-maker consider providing more break time for nurses on shift work, specifically those working in critical areas. At the same time, provide adaptation programs that help to promote the health and productivity of nurses. On the other said, daily screening and monitoring programs are recommended to assess the performance and general ability to handle the duty tasks to improve the quality of care and enhance the safety level among nurses and patients.

Ethical Considerations : Ethical approval was obtained from the Institutional Review Board at the ministry of health in Kuwait (approval number #1622/2021). Participants of this study were informed that their contribution is voluntary and that their feedback has excellent value. No written consent has taken, as there are no personal identifiers. The collection of data framed with confidentiality in a matter where the participant's name and/or contact information will not be identified or traced by anyone.

Authors Contributions: All authors contributed equally to the study design in addition to reviewing and approving the final manuscript.

Conflicts of Interest: All authors declared none.

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Review Article

Effectiveness of Progressive Muscle Relaxation Therapy (PMRT) on Sleep Quality among Chronic Liver Disease (CLD) Patients

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Abstract

Chronic liver disease (CLD) is a progressive deterioration of liver functions for more than six months, which includes synthesis of clotting factors, other proteins, detoxification of harmful products of metabolism and excretion of bile. The chronic liver disease represents a continuous and progressive process of hepatic fibrosis, liver tissue architectural distortion, and regeneration nodule formation. While fibrosis is usually irreversible, but it can be reversible in the initial stage of development. The transition time point of reversible fibrosis to irreversible fibrosis is still not completely understood.¹ Sleep disturbances, particularly daytime sleepiness and insomnia, are common problems reported by patients suffering from liver cirrhosis. Poor sleep negatively impacts patients' quality of life and cognitive functions and increases mortality. Although sleep disturbances can be an early sign of hepatic encephalopathy (HE), many patients without HE still complain of poor quality sleep.² Progressive muscle relaxation is based upon the simple practice of tensing, or tightening, one muscle group at a time followed by a relaxation phase with release of the tension and improves sleep quality among patients with CLD.

Keywords: CLD, PMRT, Sleep Quality, Effectiveness.

Introduction

The Asia-Pacific region is home to more than half of the global population and accounted for 62.6% of global deaths due to liver diseases in 2015. 54.3% of global deaths due to cirrhosis, 72.7% of global deaths due to hepatocellular carcinoma, and more than two-thirds of the global burden of acute viral hepatitis occurred in this region in 2015.

According to the third round of WHO's 2015 Global Health Estimates (GHE), liver diseases caused 312480 (4.6%) of 28444814 deaths in the Asia-

Pacific region in 2015, compared with 72437 (2.7%) of 2649742 in the USA and 197179 (2.1%) of 9278557 in Europe. The Asia-Pacific region accounts for 62.6% of 2095207 deaths due to liver diseases globally for that year. In Asian countries, the median proportion of deaths attributable to liver disease was 3.9% (range 1.86–13.9). By contrast, liver diseases caused 2.05% of all deaths in Australia and 1.33% of those in New Zealand in 2015, with underlying etiologies varying between countries.

In India, alcohol consumption is also a common cause of liver disease-related mortality. Alcohol consumption accounted for 22.2% of all deaths due to cirrhosis and other chronic liver diseases and for 19.9% of all deaths due to liver cancer in India, as reported by the GHE 2015 dataset (table 2). According to 2016 WHO estimates, age standardized deaths from cirrhosis in adult Indian men and women were 45.8 per 100 000 individuals per year and 14.7 per 100 000 individuals per

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year, respectively, with 60.0% (in men) and 33.3% (in women) of these attributed to alcohol consumption.¹⁶⁵ This prevalence might be underestimated because of poor reporting, low social acceptance of drinking, and no insurance cover for alcohol related diseases. Of all deaths due to alcohol-related cirrhosis worldwide in 2015, 19.8% were estimated to occur in India; this is a high proportion, given that the Indian population comprises 17.8% of the global population, has a smaller proportion (72.3%) of people aged at least 15 years than the global average, and has a very high proportion of lifetime alcohol abstainers (53.5% of individuals aged ≥ 15 years in 2016) compared with other 165 countries. WHO estimates indicate that the numbers of deaths due to alcohol-related cirrhosis in India increased by 22.7% (from 47 000 to 57 700) between 2000 and 2015.³

Material and Methods

Internet data bases used were PubMed and Google Scholar. The key words used were CLD, PMRT, Sleep Quality. The major six articles were cited although there were dearth of literature.

CLD and Sleep Disorder

Patients with liver disease report significantly more sleep disturbances than healthy individuals. Common complaints in regard to sleep are prolonged time to fall asleep (longer sleep latency), shortened sleep duration, daytime sleepiness (somnolence), poor sleep quality, and frequent nocturnal awakenings. Case control studies report that insomnia and daytime sleepiness are the most commonly reported problems. Insomnia in patients with hepatic cirrhosis varies from 26% to 42% while less than 10% of the control groups of healthy individuals typically experience insomnia. Recent studies have even shown quantitative evidence of sleep disturbances in cirrhosis patients, which when compared to controls have reduced REM sleep on polysomnography.⁴

Sleep disturbance and excessive daytime sleepiness have been reported in patients with hepatic cirrhosis. The objective of this study was to evaluate daytime somnolence and sleep complaints in a group of 178 patients with cirrhosis compared to a control group. Sleep features and excessive daytime sleepiness were evaluated by the Basic Nordic Sleep Questionnaire (BNSQ) and

the Epworth Sleepiness Scale (ESS); collected clinical and laboratory data, neurological assessment and EEG recordings in cirrhotic patients. Patients with cirrhosis complained of more daytime sleepiness ($p < 0.005$), sleeping badly at least three times a week ($p < 0.005$), difficulties falling asleep ($p < 0.01$) and frequent nocturnal awakening ($p < 0.005$) than controls. We found a poor correlation between sleep disorders and clinical or laboratory parameters. Our results confirm previous literature reports suggesting a high prevalence of sleep disturbance in patients with cirrhosis. Insomnia and daytime sleepiness are the main complaints. Sleep disorders are probably a multifactorial phenomenon and challenging condition that significantly adds to the burden of suffering experienced.⁴

A considerable proportion of patients with cirrhosis exhibit insomnia, delayed sleep habits, and excessive daytime sleepiness. These have been variously attributed to hepatic encephalopathy and impaired hepatic melatonin metabolism, but the understanding of their pathophysiology remains limited and their treatment problematic. Sleep is regulated by the interaction of a homeostatic and a circadian process. The homeostatic process determines sleep propensity in relation to sleep-wake history, thus the need to sleep increases with the duration of the waking period. The circadian process, which is marked by the 24-hour rhythm of the hormone melatonin, is responsible for the alteration of high/low sleep propensity in relation to dark/light cues. Circadian sleep regulation has been studied in some depth in patients with cirrhosis, who show delays in the 24-hour melatonin rhythm, most likely in relation to reduced sensitivity to light cues. However, while melatonin abnormalities are associated with delayed sleep habits, they do not seem to offer a comprehensive explanation to the insomnia exhibited by these patients. Fewer data are available on homeostatic sleep control: it has been recently hypothesized that patients with cirrhosis and hepatic encephalopathy might be unable, due to excessive daytime sleepiness, to accumulate the need/ability to produce restorative sleep.⁴

Progressive Muscle Relaxation therapy

Progressive Muscle Relaxation therapy (PMRT) is a mind-body technique that involves slowly tensing and then relaxing each muscle group in the body. Typically

used to reduce stress, PMRT is said to increase your awareness of the sensations associated with tension. Relaxation can be highly beneficial if practiced routinely in one's everyday life. Techniques involving relaxation are widely used by people to reduce anxiety and cope with stress-related problems. Relaxation therapy is initiated and taught to peoples but is practiced primarily in the clients own environment. There are countless methods used to achieve relaxation, but the procedures that are most commonly practiced in the clinical setting are Jacobson's (1938) PMRT. As PMRT is found effective, safe, non pharmacological, non- invasive, cost effective method in conditions like anxiety, depression, stress and pain.⁵

The principle of PMR is based on relaxation of the affected region after strong tensing of the muscles. Repeated use leads to a 'cultivation of muscle sense'; the patient consciously learns to be sensitive to the body and perceive the tiniest tension in order to know where to relax.

Theoretical basis

The physiologist Edmund Jacobsen worked on the assumption that a condition of rest or relaxation can most reliably be established by a reduction in neuromuscular tension and that inversely activity in the CNS can be reduced through a reduction in muscle tension (the premise of reciprocity). He began to gather empirical evidence of this interplay between the central nervous, mental processes and peripheral muscle changes in a series of studies in 1920. Jacobsen investigated the startle reaction after a sudden loud noise and ascertained that people who have learned to relax their muscles are not startled.⁶

The level of muscle tension also affects the extent of the reflex. Jacobsen also ascertained that mental visualization, especially if associated with exercise, led to slight but measurable muscular activity. For example, he showed that imagining specific arm movements was associated with an increase in EMG activity of the biceps muscles.

Appropriate eye movements could also be recorded by visualizing images (e.g. following the zigzag movements of a rabbit). Empirical evidence for the

effect of the power of the imagination on the muscles or on various body functions was provided in a series of later investigations.

Effectiveness of PMRT on sleep quality

Freeman (2001) suggests that PMR and other muscle-based relaxation variations convey health benefits in three ways:

1. Utilizing the effects of PMR to manipulate autonomic responses: Autonomic responses determine whether the body needs to engage in a 'fight-or-flight' or 'rest-and-digest' scenario or to a state somewhere between these two extremes. The sympathetic division of the autonomic nervous system (ANS), associated with 'flight-or-fight' responses, mobilizes the body in emergency and stressful circumstances. Many of these responses are not immediately apparent to our consciousness. Physically, blood flow is redirected away from the digestive process to the smooth muscle, heart rate and blood pressure increase, with these processes triggered by the increase of circulating catecholamines, which include adrenaline and noradrenaline (Hucklebridge&Clow 2002). Associated with the stress response is the release of cortisol, which mobilizes energy reserves, increases sensitivity of tissues to neurotransmitters and inhibits the immune and inflammatory response.⁶

2. Increases or activates the production of opiates: Important to well-being, endogenous opioids, such as enkephalins, dynorphins, endomorphins and β -endorphin, have been found to have a variety of effects, including analgesic, anti inflammatory and bronchodilation (Jessop 2002). These compounds and their receptor sites have been located within immune tissues (Stephanou et al 1990). It has been argued that opioids play an important part in modulating stress responses. It has been noted that opioid production is increased in adults who exercise regularly (Freeman 2001) and is reduced in adults with enduring health problems such as chronic fatigue syndrome (Conti et al 1998). In a laboratory experiment ($n = 32$) to determine the role of endogenous opioids in the effects of PMR training, McCubben et al (1996) found that PMR significantly reduced diastolic pressure, but when an opioid blockade was administered, it antagonized the

PMR training. Hypnotherapists could utilize the potential responses of reduced anxiety and pain relief in the development of anchors and post-hypnotic suggestions, with an intention to help build a patient's resources

3. Promotes optimal immune function: Over three decades, Herbert Benson and colleagues (1984) have investigated the psychological and physiological effects associated with the relaxation response, elicited from PMR, meditation, yoga and physical exercise routines, many of which appear to be the opposite of the stress response. Stefano et al (1996:) have acknowledged that repetition is crucial to the relaxation response, but surmise that 'trust or belief in expected outcomes' can help to regulate immunological function via cognitive and neurological processes. This sense of improved well-being associated with the relaxation response has been labelled 'remembered wellness', which Benson (1996) has ascribed to memories of nurturance and maternal attachment. Lazar et al (2000) have investigated the relaxation response to meditation with functional magnetic resonance imaging (MRI) and mapped areas of the brain, which are responsive to opioids. Stefano et al (1996) suggests that this work demonstrates the mind-body wiring that could modulate the relationship between cognitive and physiological processes. In this review of neural processes and the relaxation response, Stefano and colleagues (1996) note that increased circulatory levels of opioids improve mood and sense of well-being, and refer to earlier work on enkephalins, which they found to have the additional benefit of stimulating immune cells. Aside from effects of opioids on heart rate, blood pressure, respiration, immune cells and mood, these compounds have also been found to stimulate antibacterial peptides in human studies. This information can provide a wealth of ideas for hypnotherapists using PMR and tailored suggestions,

to enable patients to connect with feelings of being nurtured and supported.

Conclusion

Sleep disturbance is the most common reported problem among CLD patients. From a thorough literature review it was found that PMRT is very effective in improving the Sleep quality and it has a great scope in complimentary therapies in Clinical practice.

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Review Article

Mental Health Needs and Concerns During Floods

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Abstract

Natural Disasters can happen at any place irrespective of the developed, developing or the least developed status of a country. It can cause massive destruction to the lives and livelihoods of large population and hence, to the national economies. It is experienced that the least developed and developing countries are impacted more severely by large scale natural disasters especially the flood. A number of studies have shown a range of symptoms resulting from exposure to natural disasters such as flooding. Among these consequences, individuals may experience symptoms of post-traumatic stress disorder (PTSD), depression and anxiety. The aim of this article was to examine the psychological impact of flooding.

Keywords: *Mental health needs, Floods, Mental health concerns, PTSD.*

Introduction

Natural disasters kill sixty thousands people globally. There was almost 0.1% percent of death occurred due to all around the world which widely ranges from 0.01% to 0.04%. Droughts and floods have considered as the most devastating catastrophe that havoc the life and livelihood of human beings including other animals. It is also a fact that death tolls tend to be largely centered on low-to-middle income countries. The lack of infrastructure, disaster preparedness, weather forecasting and preventive and mitigating policies could lead to severe repercussion.^[1] There would be more likelihood of floods losses in upcoming years. Early warning systems and mitigation strategies would be done to reduce the occurrences and to curb the impact of floods.^[2] The communication regarding early warning has to be conveyed to the public at large preventing the impending risk associated with this natural disaster. However the information impact of flood and its

mortality, injury either unknown or underreported^[3]

There are different types of flood which created lot of concerns to the humanity like Coastal floods or (storm surges) occurred in the coastal areas of sea and big lakes which creates high level of water levels and tidal waves. Secondly, flashfloods occurred after rainfall with high intensity with a sudden onset of water rise happens commonly on hilly areas. Thirdly, River caused flooding of the river outside the river frontiers because of sudden gush of water form dam after a heavy rainfall. Finally, Drainage problems and tsunamis are also contribute to flooding.^[4]

Flooding in Indian context

Moreover in Indian context, According to the global assessment records our country stands top five in the world for being often hit by the natural disaster like floods.^[5] India, a lower middle income country faces a lot of economical difficulty to withstand the disaster.^[6] Being a disaster prone state India witnessed a lot of devastating flood in the past both in southern and Northern state like Mumbai in 2005, Utrakand in 2015, Chennai in 2015 etc. In Kerala in august 2018 flood due to heavy rainfall had stricken the community massively during the passage of monsoon depression. This eventually resulted

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in taking more 4000 people's live away and affected by 5.4 millions of people. The economic loss for this flood was 3.8 million as estimated by government of Kerala during the post flood evaluation.^[7]

There are different types of flood which created lot of concerns to the humanity like Coastal floods or (storm surges) occurred in the coastal areas of sea and big lakes which creates high level of water levels and tidal waves. Secondly, flashfloods occurred after rainfall with high intensity with a sudden onset of water rise happens commonly on hilly areas. Thirdly, River caused flooding of the river outside the river frontiers because of sudden gush of water form dam after a heavy rainfall. Finally, Drainage problems and tsunamis are also contribute to flooding.^[4]

Many of the researchers were done after the disaster signifies the importance of magnitude of psychological problems after the disaster. This is the time when the model of care should focus on primary prevention rather than waiting the problem to occur and then taking the precautions. Assessment and interventions at the early phases are corner stone to promote mental health and wellbeing and further it may focus upon the prevention development of mental health issues at the grass root level. This can be achieved largely by early screening of the people affected with flood with specially considering the vulnerable population like pregnant women, children and senior citizens. The mental, emotional and physical response pattern of the individual affected would be different according to their individual ,socio-cultural and the severity of disaster. At the individual level it includes coping styles, resilience system, pre morbid factors and person with existing mental health disorder. Socio cultural factors includes mainly social familial factors and the community support systems. Moreover, another important parameter is severity of disaster in terms of the physical damages of assets, the number of humans affected with fatalities including injuries and duration of exposure and recurrence.^[8]

Psychological concerns during flood

The effect of flood on psychological well being is largely affected because of obvious reasons like loss of loved ones, properties and house hold itself. This can be as a result of various stressors including primary and

secondary. The primary stressor is due to the immediate loss and concerns whereas secondary stressors denotes the anticipated tensions related to emotional break down regarding the rebuilding and thinking about the post disaster aftermaths. Flooding can challenge the different domains of resilience namely physical, emotional, mental and spiritual.^[9] World Health organization stressed upon the fact that mental health aspect of flood victims had not been taken care of with deserving attention by the disaster preparedness team. The people living in developing countries had taken a toll on mental health and the capacity to protect them is limited.^[10] In Kerala state, there reported approximately 5.4 million severely affected and 400 people lost their lives. The financial loss found to be 5.3 million dollars as per the findings of post disaster assessment commissioned by the Government of Kerala.^[11]

The impact of disaster in mental health is affected is a well known fact among all ages. The incidence of PTSD among children was 30.6% after been affected by the super cyclone in Orissa. This was conducted one year after the calamity^[12]. This type of mental illness has been under reported and undiagnosed due to the lack of skill identifying the stress reactions various among parents, teachers and mental health professionals.^{[13],[21],[27]} .The common symptoms may include experiencing psychological distress when they are exposed to visual cues like damaged building and environment. This kind of traumatic reminders were important to development of psychological trauma.^[14] Fear of getting affected with the disaster again would in turn lead to anxiety and depression among children and with preexisting psychiatric illnesses the chances of anxiety were more were also reported.^[15] Moreover the vulnerability of getting PTSD and other mental health disorders among women were reported compared to its male counterparts.^[12]

The main concern here is the development of post traumatic stress disorder (PTSD). The incidence of PTSD in India constitutes about 70% at its maximum after the natural disaster apart from the considerable financial and physical loss^[16] A cross sectional study conducted by Mason et al reported almost one third of population met the criteria of PTSD, almost one third of the populations had psychiatric problems and one fourth

had affected affected with depression^[17]. In August 2018 Kerala witnessed a disastrous flood which was being worst than the flood in 1924.

Community relocation is necessary to prevent the people to fall in to much danger. People building may totally destructed and death of their loved ones had really been painful leading to more psychological distress. As a disaster management team community has to be mobilized with helps of central/state/district/local self government in collaboration with mass community participation such as youths and involving people from NGOs Non governmental organization.^{[18] , [22] , [23]}

Mental Health Care during Flood

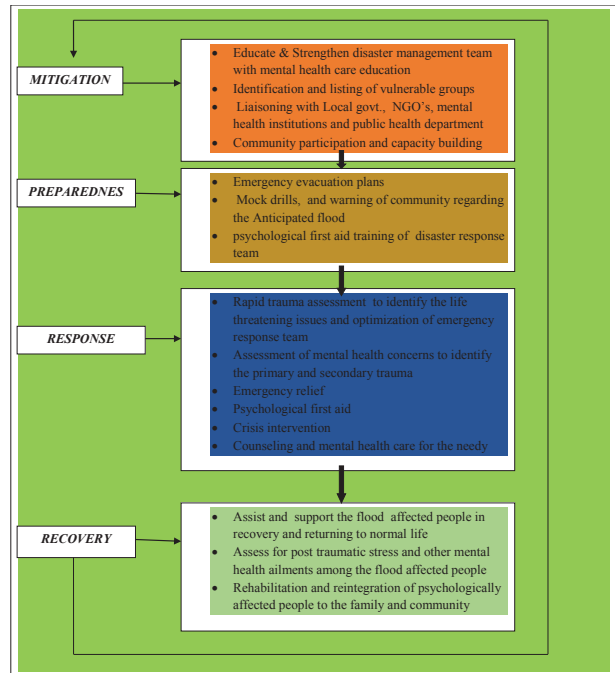
The mental health assessment and care should be planned and framed before the actual occurrence of flood. A framework has been prepared by the reviewer in view of addressing mental health concerns during all 4 phases of disaster management. The mental health care team should work in liaison with the disaster management team and local government for the preparedness, early identification, management and rehabilitation of people affected by flood.^{[19], [24], [25], [26]}

Lessons learned after the flood

There are different experiences and learning’s unleashed post flood are following

1. Emergency management and Triaging (To save precious lives according to the priority)^[20]
2. Assessment of mental health concerns (To rule out the mental health concerns at the initial phase)
3. Individual tailored psychological intervention
4. Identification of person living with co morbid Illness (Detailed assessment to promote primary prevention)
5. Tracking the vulnerable population(like women, child and the elderly)
6. Community Participation and awareness (Support group and capacity building)
7. Enabling the process of rehabilitation for rebuilding and to develop better resilience system

FRAMEWORK FOR MENTAL HEALTH ASSESSMENT AND MANAGEMENT IN FLOOD



Conclusion

In all man-made and natural disasters, least discussed topic is the assessment, care, rehabilitation and reintegration of people who are mentally affected the unanticipated event. The proper framing up and implementation of psychological first aid and crisis management through all four phases of disaster management is recommended considering the unaddressed mental health issues among the people for the early recovery and resilience.^[28,29]

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Psychological Issues of People affected with Flood: A Systematic Review

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Abstract

Introduction: People experience the psychological impact of a disaster before, during, and after the actual occurrence of the disaster event. In particular, during the period of initial disaster response, the behavior and mentality of the public are temporarily disrupted due to stress. In the following period, not only fear but also physical deprivation is experienced. This systematic review is to determine the impact of psychological issues of people affected with flood.

Methods : A thorough literature search from the databases were searched between 2006 and 2020 including MEDLINE, PsycINFO, PubMed, EMBASE, CINAHL, The British Nursing Index, and the Cochrane Central Register from the time period 2000- 2015. Total 15 quantitative studies were included in this review. These studies were conducted across the world which comprises six different countries like China (1), United Kingdom (6), India(3), Australia (2) and Pakistan (2). **Results :** The findings revealed that the prevalence of Post traumatic depression was 80% among the different studies. Nearly 67% of people affected with flood were shown symptoms of anxiety. More than half (60%) of them were depressive due to the flood aftermaths.

Conclusion : Many of the studies recommended initial treatment and psychological intervention for the people affected with flood. There is also an emphasis on special consideration for the vulnerable like infant, old age and pregnant women.

Keywords: Flood, Psychological Issues, Anxiety, Depression & PTSD.

Introduction

Flood is a natural disaster which happens every year, affects both flood prone and non-prone areas of the world resulting in most serious and nonreversible losses. In India more than 10 million people are being affected by flood every year. Floods are mainly caused not only by heavy rain, but also due to encroachment of water bodies for urban development, increase in sea level,

poor drainage, and climate changes. As an immediate consequence, economy, ecosystem and human lives are affected. And loss of valuables, documents, properties, health and opportunities can further affect the victims in post-flood time.

The disaster response team always tries to address the health and physical needs of flood victims in immediate and post disaster time. But the less identified and most neglected area is psychological wellbeing of the people being left. Galea, Nandi and Vlahov (2005) found that the prevalence of post flood PTSD rates varied from 5 to 60% in the first 1–2 years following disaster, although most studies report prevalence rates in the lower half of this range.¹

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Not surprisingly, depression and anxiety are other major psychological disorders which found in flood victims. Norris (2005) found that depression was the second most commonly found disorder among people exposed to disaster after PTSD. In a review of psychological sequelae following disasters, the third most common psychological consequence was anxiety (Norris, Friedman, & Watson, 2002). In particular, generalized anxiety disorder is diagnosed in higher than normal rates in people exposed to disasters, and self-report anxiety is higher than in controls (Norris, 2005).

Even though the flood is a seasonal disaster which can be expected in part of the world, there is no prescribed plans available for addressing the psychological issues of flood victims. The researcher here tried to do a literature search to find the psychological impact of flood across different parts of the world from the studies.

Methodology

Databases were searched between 2006 and 2020 including MEDLINE, PsycINFO, PubMed, EMBASE, CINAHL, The British Nursing Index, and the Cochrane Central Register were searched over time period 2000-2015 for quantitative studies focusing the psychological impact of flood survivors

The search strategy matched the following criteria:

- (1) Studies focusing on flood survivors,
 - (2) Psychological impact of flood survivors,
 - (3) flood and mental health outcomes,
 - (4) flood and psychological morbidities,
 - (5) articles recommending interventions for the flood victims,
 - (6) literature published from the year 2000,
 - (7) article published in English.
- Exclusion criteria set were: (1) article which lacks methodological details, (2) article focuses on impacts of flood other than psychological, (3) psychological impact of other natural and manmade disasters, (4) qualitative and mixed methods (figure1).

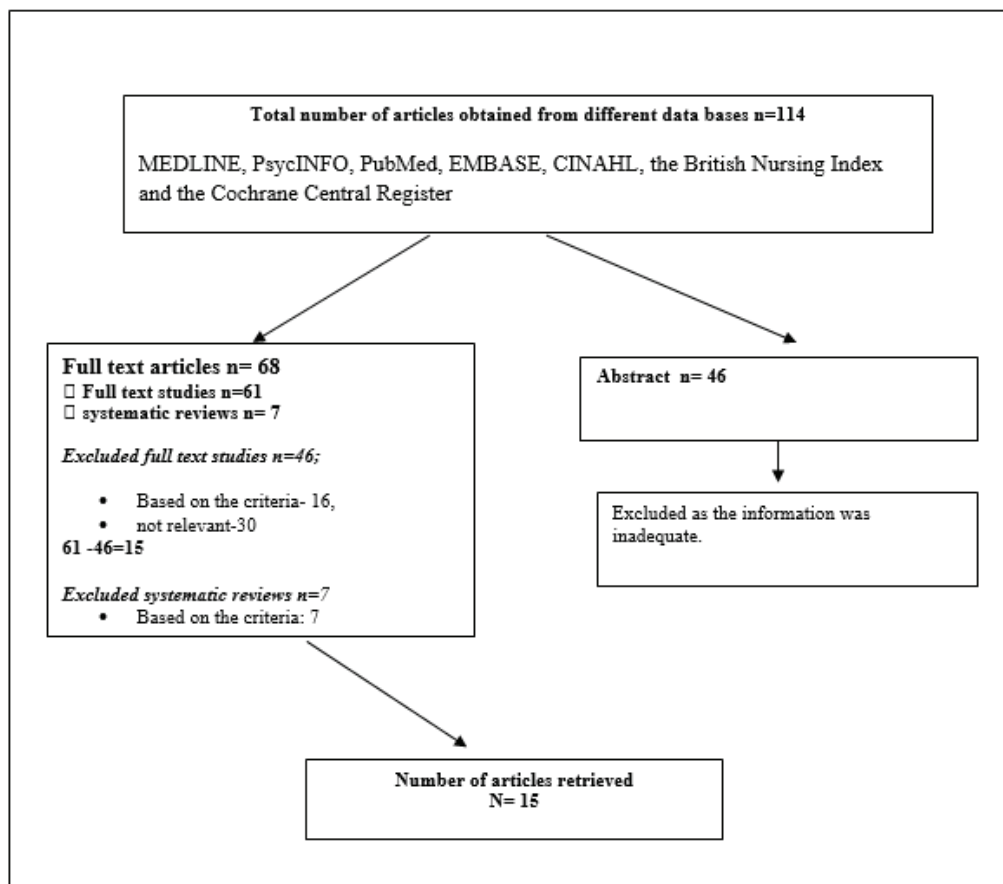


Figure 1: Flowchart of search.

Extracted journals were evaluated and scrutinized based on the selection criteria. And the quantitative studies taken were by ensuring the relevance, appropriateness, clarity in methodology according to the quality assessment tool of quantitative studies. And the data tabulated and classified as: (1) Author, Journal,

year and setting, (2) Research Approach and design sample, (3) tools and techniques, (4) Major findings, (5) psychological impact, and (6) Recommended interventions. Studies were identified according to the sample, sample size, assessment tool and results (Table:1).

Table 1: List of studies included in the review N = 15. List of review from the year 2006 - 2015

S.No	Author, Journal, Year and setting	Research Approach/ Design Sample	Tools & Techniques	Major Findings	Psychological Impact	Recommended Interventions
1.	Liu et al. Can Journal of Psychiatry. China . 2006 ^[1]	Quantitative Retrospective 33 340 Flood victims from households of seven countries	Multi stage Sampling House hold Interview Method DSM IV Criteria was used	PTSD was higher in female and geriatric victims.	A total of 2875 study subjects were diagnosed with PTSD, yielding an incidence of 8.6%.	Provide psychological support along with physical assistance. Special attention to older population
2.	Victoria Mason , Holly Andrews, Dominic Upton Psychological Health Medicine United Kingdom 2010 ^[2]	Quantitative Cross sectional 444 adults exposed to floods.	A questionnaire battery including the Harvard Trauma Questionnaire (trauma and symptoms associated with PTSD), Hopkins Symptom Checklist (anxiety and depression), Coping Strategies Questionnaire	Females had higher mean scores on PTSD, anxiety and depression than males.	27.9% of participants met criteria for symptoms associated with PTSD, 24.5% for anxiety and 35.1% for depression.	Symptoms of distress are a significant issue amongst communities affected by environmental events warranting further attention to prevent chronic distress.
3.	Corinne Peek-Asa , Marizen Ramirez, Tracy Young, YanYan Cao Prehospital and disaster Medicine US Midwestern states. 2012 ^[3]	Quantitative Cross sectional online survey 1231 University students	Online Survey Modified Child PTSD Symptom Scale.	Work disruption was independently associated with decreases in general mental and physical health following the floods, as well as with increases in alcohol use.	Controlling for gender, ethnicity, grade, and damage to the student's home, students reporting work disruption were more than four times more likely to report PTSD symptoms (95% CI, 2.5-8.2).	Focus and planning on work losses is important for the fact Individuals who lose their jobs may be a vulnerable population post-disaster.
4.	Tim R. Wind, Pooran C. Joshi, Rolf J. Kleber Ivan H. Komproe Cambridge University Press India 2013 ^[4]	Quantitative Cross sectional Comparative 318 affected respondents with 308 individuals who were not affected by floods	Hopkins Symptom Checklist-25 (HSCL-25). Short Form-12 (SF-12).	large negative impact of the recurrent floods on mental health outcomes and psychological and physical functioning. However, in a context with recurrent floods, disaster mental health status is not a relevant predictor of functioning.	The affected group showed large to very large differences with the comparison group on symptoms of anxiety (D = .92) and depression (D = 1.22). The affected group scored significantly lower on psychological and physical functioning than the comparison group (respectively D = .33 and D = .80).	Implementing psychosocial context-oriented interventions to address the erosion of the context rather than specific mental health interventions.
5.	Bei B et al. Aging Mental Health Australia 2013 ^[5]	Quantitative Longitudinal prospective design 274 older adults	The surveys included measures of anxiety, depression, self-reported health, and satisfaction with life; the post-flood survey also included questionnaires on flood experience, symptoms of post-traumatic stress disorder (PTSD), stoicism, and psychological coping with floods.	Greater flood exposure and the lack of social support were the risk factors for poorer mental and physical health.	Compared to those not personally affected (78.8%), personally affected individuals (21.2%) reported significantly higher PTSD symptoms, with about one in six	Understanding older adults' psychological responses to disasters and have practical implications for service planning and delivery.

Cont... Table 1: List of studies included in the review N = 15. List of review from the year 2006 - 2015

6	M Ishikawa et al The Interational Journal Of Social Psychiatry 2013 India ^[6]	Quantitative Cross sectional 318 Flood Survivors	Two-item Patient Health Questionnaire (PHQ-2) Clinical Interview for assessing PTSD		There were only two PTSD cases and five of major depressive disorders.	The social background and temperamental characteristics of the Tibetan culture may play a suppressive role in psychiatric disorders.
7.	Man Cheung Chung, Sabeena Jalal, Najib Ullah Khan Psychiatry Pakistan 2014 ^[7]	Quantitative Cross sectional 131 Flood victims	Post traumatic diagnostic scale, General Health questionnaire-28, Cognitive Distortion Scales, Courttauld Emotional Control Scale	Partial least squares modelling showed that disaster exposure characteristics were significantly correlated with PTSD and psychiatric comorbidity	Victims met the diagnostic criteria for PTSD and scored above the cut-off for psychiatric cases	The flood victims reported PTSD and psychiatric co-morbid symptoms which were related to their subjective exposure to the flood
8	Jessica Elizabeth Lamond, Rotimi D Joseph, David G Proverbs Environmental Research 2015 ^[8] United Kingdom	Quantitative Cross sectional Postal Surveys 280 respondents	Researcher made questionnaire 5- Point Likert Scale	Post flood stressors and coping actions are somewhat correlated with mental health deterioration. The need to relocate is most strongly correlated with mental health issues Most households experienced some anxiety and a minority experienced extreme symptoms of anxiety.	Most households experienced some anxiety and a minority experienced extreme symptoms of anxiety.	Consider the preferences of support with installing mitigation measures may lead to improve mental health outcomes for communities at risk.

Table 2: List of review from the year 2016-2019

9	Aslam Naeem ; Kamal, Anila Pakistan Journal Of Medical Research 2016 Pakistan ^[9]	Quantitative Cross sectional Survey 2000 Individuals from highly flood affected areas	Urdu translated versions of depression, anxiety and stress scale (DASS) and Impact of event scale (IES)	Psychological disorders persists for several years after the disaster and results in significant personal distress.	PTSD was higher among females and unemployed individuals. Moreover, higher exposure to flood was positively associated with posttraumatic stress disorder whereas, age, and education were negatively related with distress and posttraumatic stress disorder.	The association between psychological distress, gender, age, education and employment status has to be taken into consideration when mental health policies for flood-survivors are planned at the national level.
10	Wait TD et al, BMC Public Health England 2017 ^[10]	Quantitative Cross sectional Survey 2126 people lived in flood affected areas	The Patient Health Questionnaire (PHQ 2), Generalised Anxiety Disorder scale (GAD-2) and Post Traumatic Stress Disorder (PTSD) checklist (PCL-6).	Disruption to health/ social care and work/ education was also associated with higher odds of psychological morbidity.	The prevalence of psychological morbidity was elevated amongst flooded participants ([n = 622] depression 20.1%, anxiety 28.3%, PTSD 36.2%) and disrupted participants ([n = 1099] depression 9.6%, anxiety 10.7% PTSD 15.2%).	Disruption to health/ social care and work/ education was also associated with higher odds of psychological morbidity.
11	Tempest LE et al The European Journal of Public Health England 2017 ^[11]	Quantitative Cross sectional survey 2006 Paticipants	The Patient Health Questionnaire (PHQ 2), Generalised Anxiety Disorder scale (GAD-2)	Men who had probable depression, anxiety or PTSD, 65.3, 70.8 and 74.6%, respectively, had experienced concerns about their house value after the exposure to flooding	Participants who experienced concerns about health had the strongest associations with probable depression and PTSD, whereas those who experienced the loss of items of sentimental value had the strongest association with probable anxiety	Interventions to reduce the occurrence of these secondary stressors are needed to mitigate the impact of flooding on probable psychological morbidity.

Cont... Table 2: List of review from the year 2016-2019

12	Munro A et al, Lancet Planet Health United Kingdom ^[12]	Quantitative Cross sectional survey 622 Participants	PHQ-2 depression scale) and anxiety (measured by the two-item Generalised Anxiety Disorder [GAD]-2 anxiety scale), and post-traumatic stress disorder (measured by the Post-Traumatic Stress Disorder Checklist [PCL]-6 scale).	Scores for depression and post-traumatic stress disorder were higher in people who were displaced and reported receiving no warning than those who had received a warning more than 12 h in advance of flooding (p=0.04 for depression, p=0.01 for post-traumatic stress disorder)	People who were displaced from their homes were significantly more likely to have higher scores on each scale; odds ratio (OR) for depression 1.95 (95% CI 1.30-2.93), for anxiety 1.66 (1.12-2.46), and for post-traumatic stress disorder 1.70 (1.17-2.48) than people who were not displaced.	Local authorities should consider prioritising identification of people who might have mental health problems after flooding among those displaced. Other priority areas could be early warning systems for evacuation and services to enable flooded residents to remain at home where possible.
13	Bhat BA et al. Journal Of Psychiatry India 2018 ^[13]	Quantitative Cross sectional survey 115 Subjects	Semi-structured questionnaire was used to record the socio-demographic status. MINI-International Neuropsychiatric Interview (MINI-Plus) was used to assess the psychiatric diagnosis.	Of 115 patients, 38 (33.04%) were males and 77 (66.96%) were female, with an approximate male to female ratio of 1:2. Mean age of the subjects was 44.01 years	57.39% of subjects had major depressive disorder, 12.17% had generalized anxiety disorder, 6.09% had panic disorder, 6.09% had post-traumatic stress disorder and 4.35% had adjustment disorder	Emotional and psychological needs of the affected population and beginning community based group interventions as early as possible can help to mitigate the development of psychiatric disorders in the affected people.
14	Jermacane et al BMC Public Health England 2018 ^[14]	Longitudinal observational open cohort with 2 years follow up study 1064 responders	The instruments included the Patient Health Questionnaire (PHQ-2) for depression, Generalised Anxiety Disorder scale (GAD-2) for anxiety and Post Traumatic Stress Disorder (PTSD) checklist (PCL-6) for PTSD	Adverse mental health outcomes were higher in the flooded group than among those who were unaffected	Approximately 6% of the participants reported symptoms indicative of depression, 8% of anxiety and 13% of PTSD	Probable psychological morbidity may be at least two years even after exposure to flooding. Health and social care services should be aware that the increased need in populations may be prolonged.
15	Thomas JJ et al. Int J Community Med Public Health. India 2019 ^[15]	Quantitative Cross sectional survey 306 Subjects residing in flood affected areas	Purposive sampling The Patient Health Questionnaire (PHQ-9)	no statistically significant association was found between gender and depression in our study. Geriatric population (67.1%) showed significantly levels of depression which is higher than general population.	48% showed symptoms of depression. 28.10 % were mildly depressed, 12.74% were moderately depressed, 5.56% had moderately severe and 1.63% had severe depression.	Screening for the psychiatric morbidities and early intervention by the psychiatrists and psychologists is required to be done to the affected victims.

Results

Majority of the studies were large scale. The sample size found in different studies tabulated from 115 to 33 340 with a total of 44575 subjects with a mean of 2971.6. Study participants were selected from households, rehabilitation centers, and community of flood affected areas. The scale and evaluation tools used in the studies were: DSM IV Criteria, Harvard Trauma Questionnaire, Hopkins Symptom Checklist (anxiety and depression), Coping Strategies Questionnaire, Modified Child PTSD

Symptom Scale, Hopkins Symptom Checklist-25, Two-item Patient Health Questionnaire, Posttraumatic Diagnostic Scale, General Health Questionnaire- 28, Cognitive Distortion Scale, Courtauld Emotional Scale ,Depression, anxiety and stress scale (DASS) and Impact of event scale (IES), Generalized Anxiety Disorder scale (GAD-2) and Post Traumatic Stress Disorder (PTSD) checklist (PCL-6), and MINI-International Neuropsychiatric Interview (MINI-Plus

Table :2 Psychological impact of flood

Sl no:	Psychological impact	Number of studies	%
1.	Post traumatic stress disorder (PTSD)	12	80
2.	Anxiety	10	67
3.	Depression	09	60

Discussion

The current systematic review found that there was a significant psychological impact among people affected with flood. The prevalence of PTSD were most common comprising of almost 80% in the selected studies. Anxiety were seen in 67% and the symptoms of depression was found in more than half of flood population.¹⁶

In a study conducted in India, among the participants 48% showed symptoms of depression. 28.10 % were mildly depressed, 12.74% were moderately depressed, 5.56% had moderately severe and 1.63% had severe depression.¹⁵ Major tsunami disaster of 2004 showed 43% prevalence of clinically significant psychological distress. 31% of participants had very high levels of psychological distress.¹⁶

In 2018, the southern state of Kerala had been hit by a flood 42.2% of male exhibited depressive symptoms. The UK longitudinal cohort study conducted by Jermacane et al in 2018 found that the prevalence of Depression, Anxiety and PTSD were significantly higher after the flood compared to those who were not affected.¹⁴ This is also in line with the findings of Munro et al revealed the people who displaced from their homes were significantly more likely to have higher odds for depression 1.95 (95% CI 1.30–2.93), anxiety 1.66 (1.12–2.46), and post-traumatic stress disorder 1.70 (1.17–2.48) than people who were not displaced¹¹

A cross sectional study conducted among the flood victims of 2014 Kashmir floods reported major depressive disorder(57.39%), generalized anxiety disorder (12.17%), panic disorder(6.09%), had post-traumatic stress disorder(09%) were present.¹³

The role of gender is also found to be a significant factor although it may vary from across the studies. The impact of flood had been largely affected by women.^{1, 17,18} There is an association between PTSD and female counterparts whereas for men, the association was found between relationship problems and probable depression.¹⁹ A study from Pakistan reported though both genders were affected females were more vulnerable to depression, stress and PTSD which found to be significant.⁹

Another factor which had an impact during flood was the age, In an Indian study the prevalence of depression was maximum in geriatric population (67.1%) which was significantly higher than general population this was in concordance with findings of a Canadian study. However after a Pakistan flood adolescents between 16 to 20 years were highly affected whereas, least affected were the old age group.⁹ Apart from that low socio-economic status, seen to be related to higher levels of symptoms across multiple studies.²⁰ The flood victims reported PTSD and psychiatric co-morbid symptoms which were related to their subjective exposure to the flood.⁷ A study conducted in Australia reported greater flood exposure and the lack of social support were the risk factors for poorer mental and physical health.⁵

From the light of the above findings it was found that there is need of prompt assessment to understand the magnitude of mental health impact on flood survivors. Recognizing the physical, social, vocational and most importantly psychological concerns of the affected. Several factors has to be considered while dealing the flood survivors like age, gender, history of previous psychiatric illness and socioeconomic status. Providing psychological support along with physical assistance with special attention to older population. Implementing

psychosocial context-oriented interventions to address the erosion of the context rather than specific mental health interventions. Moreover, Focus and planning on work losses is important for the fact Individuals who lose their jobs may be a vulnerable population post-disaster. Consider the preferences of support with installing mitigation measures may lead to improve mental health outcomes for communities at risk

Conflict of Interest: None

Source of Funding: None

Ethical Clearance: Not required as it was a systematic review

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Impact of Guided Imagery on Depression, Stress and Anxiety among Wives of Patients with Alcohol Use Disorder

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Abstract

The purpose of this article is to evaluate the impact of Guided Imagery (GI) on Depression, Stress and Anxiety among wives of patients with Alcohol Use Disorder (AUD). Many studies have examined the protective factors associated with individual's mental illness. In some studies, consumption of Alcohol had an inverse relationship to mental health problems, whereas in other studies, it leads to serious effects on the family members of the AUD patients. If not properly managed, stress can lead to disturbances in cognitive functioning, mood-related problems, obesity, and heart disease. Guided imagery has been shown to be an effective technique to help people recover from stress. The literature on guided imagery, however, does not take the theme of the guided imagery script into account. Additionally, there are gaps in the research regarding any interaction between rurality and mood, stress, and guided imagery. Guided Imagery describes techniques that use visualizations and draw on the participants' active imagination and mental imagery. It typically involves a person directing the mental exercises and the participants are guided through suggestions to evoke specific images. It is used as psychotherapy, as a relaxation or meditation technique, or experimentally to evoke specific emotional states. Guided Imagery is cost effective, noninvasive, non-pharmacological complementary and alternative therapy to reduce the level of depression, stress and anxiety among wives of AUD patients.

Keywords: Guided imagery, Depression, Stress, Anxiety, wives of AUD patients

Introduction

Alcohol use is widely prevalent in Indian society and consequently results in widespread losses in the form of injurious physical health outcomes like cirrhosis of liver, heart disease, diabetes as well as leads to absenteeism, road traffic accidents and various mental health and behavioral problems¹. Alcoholism is considered as a major health as well as a social problem. Often the family members of patient with alcohol use disorder suffer intense psychological, physical and social trauma due to the core drinking problem of the family member². Most deeply affected are the wives of patient with

alcohol use disorder. The problems faced by patient with alcohol use disorder have often wedged the attention in society yet finding and applying effective interventions to reduce the pain and suffering of being a partner of patient with alcohol use disorder is still a challenge. The wives of alcohol-dependent individuals experience high levels of stress from dual problems: husband's alcoholism and domestic violence by the husband and are thus a high-risk group. It is urgently required to study these aspects like the stress, coping & domestic violence experienced by them². One study found that women who lived with a substance-abusing partner tended to have much worse states of health, with more anxiety, stress, physical illness, and significant impairment of their overall quality of life as indicated by lower family incomes and higher levels of domestic abuse³. Stress in wives of patient with alcohol use disorder leadsto many consequences in wives of patient with alcohol

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use disorder and the remedial action was not effectively taken⁴. There was thus a need to provide information regarding stress management and it is very important to note that a high degree of empathetic understanding is needed to help the wives of patient with alcohol use disorder in better coping.⁵

Adults who are living close to a person with alcohol problems are mostly affected by the problems such as alcoholism causes stress in the relationship, and being exposed to this kind of stress is highly detrimental. Alcohol misuse affects couples' relationships in a variety of negative ways like increased conflict, communication problems, poor sexual relations and domestic violence⁶. Historically wives of AUD patients have disturbed pathological personalities that were instrumental in maintaining their husband's drinking. More recently researches have tended to support the view that the behaviour of these women reflects their stressful circumstances. The women in the study reported interpersonal, extra personal and intra personal stressors.⁷The most frequently reported and highest ranked stressor was their relationships with their husbands. The wives used all sorts of coping, they themselves were more quarrelsome, they felt angry, they felt helplessness on other occasions, they adopted a strategy of withdrawing, or avoiding the husband altogether, they had tried to get drunk themselves to show them what it was like or they had locked the husband out of the house.⁸ An experimental study to investigate the relationship between guided imagery technique on stress reduction among 89 wives of alcoholics residing in the Salvation Army Harbor Light suggested that GI is potentially promising instruments for reducing the stress level among the wives of alcoholics⁸. Another descriptive study to identifies the contribution of the husband's alcoholism on the spouse's stress proneness in 118 wives of alcoholic patients admitted in community de-addiction centre, Yeshwantpur, the stress level of wives of chronic alcoholics, occasional drinkers and new drinkers were compared. The study results showed that spouse's stress level wives of chronic alcoholics ($t_{46}=5.48$, $p=0.037$), occasional drinkers ($t_{32}=3.21$, $p=0.04$) and new drinkers ($t_{40}=2.42$, $p=0.03$) is directly related to the severity of husband's drinking.⁹

2. Guided Imagery and its mechanism of action

A broad definition of guided imagery might be: any internal work that is done which involves thoughts (uses the "mind") and has a positive effect on health. This can range from "thinking positive" to elaborately structured processes involving relaxation, meditation, and body postures. It can include biofeedback and various enhancements of mood via music, electrical or vibrating stimulation, massage, acupuncture, magnetic (or other) fields, or ingested supplements of drugs and herbs. The common denominator is thoughts, and their effects on body function. Words have powerful positive and negative effects on the human mind and body.¹⁰ Guided imagery provides a powerful psychological strategy that enhances a person's coping skills. Imagery involves all the senses, as well as one's whole body and emotions. It is a way of viewing the ideas, feelings, experiences and interpretations. Imagery can stimulate changes in bodily functions such as heart rate, blood pressure and respiratory patterns. It can help tap inner strengths to find hope, courage and other qualities that helps cope with a variety of conditions¹¹. Among integrative modalities, Guided Imagery (GI) is considered a "relaxation modality" by the National Center for Complementary and Integrative Health, because it can profoundly activate the body's natural relaxation response as characterized by slower breathing and lower blood pressure as well as increased feelings of well-being¹². Imagery's effectiveness relies on using all the senses¹³. It includes relaxation, focused breathing, and a variety of multisensory images to promote reduction of stress, depression and anxiety as well as to restore levels of energy. The multiple styles of imagery include (1) feeling state imagery designed to shift the participant's mood to one of peace and calm, (2) end state imagery suggesting that participants see themselves the way they wish to be, and (3) energetic imagery focusing on restoring normal levels of energy.

3. Stress and Guided Imagery

Stress is considered as the body's reaction to a change that requires a physical, mental or emotional adjustment or response. It can come from any situation or thought that makes frustrated, angry or nervous. Stress, being the most common problem among the wives of patients with alcohol use disorder demands some intervention to reduce it if not alleviate.

A study in Korea evaluates the effects of guided imagery on stress and fatigue in patients undergoing radioactive iodine therapy after thyroidectomy. Participants were 84 individuals (44 for experimental group and 40 for control group) with thyroid cancer. The experimental group listened to a guided imagery CD once a day for 4 weeks. There were significant decreases in stress ($F = 28.45$, $P < 0.001$) and fatigue ($F = 26.17$, $P < 0.001$) over time in the experimental group compared to the control group. The study recommended guided imagery as an effective intervention to thyroid cancer patients with stress and fatigue¹⁴.

In another study, where Guided imagery as an intervention was given for stress in hospitalized pregnant women by using pre- /posttest design, the effects of guided imagery on maternal stress in 19 hospitalized pregnant women were examined. Mean stress and systolic blood pressure measurements at post intervention were significantly lower than mean levels before listening to the guided imagery CD. The study provides preliminary evidence that a guided imagery intervention may be effective in reducing maternal stress in hospitalized pregnant¹⁵. Jing, X., conducted a quantitative true experimental study to investigate the immediate effects of guided imagery for reducing stress in centrifuge training on 12 healthy young men and measured changes in heart rate during centrifuge training, in heart rate variability before and after centrifuge training, and also evaluated the relaxation and stress in three phases: before intervention, after intervention and following centrifuge training. The change in the pattern of stress was different in the two groups over the three phases. Guided imagery was capable of decreasing stress, pre- or post- centrifugation¹⁶. Elizabeth Carter, Registered Psychologist, conducted an experimental study into the use of pre-packaged compact discs (CDs) which incorporate Guided imagery (GI) with suggestions and affirmations, indicates that the use of these CDs results in quick reduction of stress related issues for selected consecutive samples of 100 spouse of alcoholics. Marked improvements were identified in general feelings of well-being (91%), positive thoughts (82%) and ability to cope in stressful situations (73%). Decreases in incidence of ratings were greatest for insomnia, anger and 21 negative thoughts. Most commonly the first benefits people noticed were increased relaxation, decreased negative

thoughts and decreased stress¹⁷.

4. Anxiety and Guided Imagery

According to American Psychology Association, anxiety refers to persistent, excessive and unrealistic worry about everyday events or things such as financial crisis, domestic issues, health care problems and worrying about the future and is considered as one of the major emotional health problems found in wives of patients with alcohol use disorder.

A general systematic review of the literature including 46 studies that here is preliminary evidence for the effectiveness of guided imagery in the management of stress, anxiety and depression, and for the reduction of blood pressure, pain and the side effects of chemotherapy.¹⁸ Tusek's overview article citing 7 studies concluded that Guided Imagery can increase self-esteem independence, and control and decreases length of stay, pain, narcotic consumption and anxiety.¹⁹ A meta-analysis of 10 Guided Imagery studies concluded that although the number of studies prevented statistical analysis, immediate results from Guided Imagery are possible and practice does increase the effectiveness of the intervention.²⁰ A systematic review on meditative therapies which included Guided Imagery approaches concluded some efficacy of meditative therapies in reducing anxiety symptoms but noted that most studies measured only improvement in anxiety symptoms, not anxiety disorders as clinically diagnosed²¹.

5. Depression and Guided Imagery

A person who is depressed usually experiences several of the following symptoms: feelings of sadness, hopelessness, or pessimism; lowered self-esteem and heightened self-depreciation; a decrease or loss of ability to take pleasure in ordinary activities; reduced energy and vitality; slowness of thought or action; loss of appetite; and disturbed sleep or insomnia. Besides stress and anxiety, depression is the undiagnosed symptom that has been found in the wives of patients with alcohol use disorder. Currently, it is thought that good body functioning is accompanied by positive thoughts, whereas pathological body functioning is accompanied by negative and repetitive thoughts²² In the brain, a thought, idea, or mental image work as "emotionally

competent stimuli.” These stimuli, whether prescribed by biologic evolution or learned have the capacity to produce certain patterns of homeostasis. The state of sadness is accompanied by a reduced number of positive mental images and by more excessive attention to those images. When persons have the experience of positive thoughts, their mind represents more than well-being; it also represents well-thinking. On the contrary, feeling sadness is associated not only with sickness but also with an inefficient way of thinking, concentrated around a limited number of ideas of loss.²²In GI, positive mental images and positive affective experiences can counteract the depression rumination spiral.²³ This process works as an adaptive alternative to decompensation, raising the mood, and relieving depressive symptoms. Therefore, GI contributes to antirumination strategies that are debilitating.²⁴Positive mental images have a relaxing effect and, consequently, a psychophysiological and cognitive effect²⁵. When depressed individuals have access to positive mental images and to a state of body relaxation, they are able to reorient their thoughts away from unpleasant stimuli. Thus, positive thoughts contribute to an improvement in feelings about oneself and the world. Results from the empirical literature indicated that GI was effective in improving mood states in individuals with a variety of illnesses. A community-based nursing study in 56 people with advanced cancer. Progressive muscle relaxation and GI training revealed significant decreases in depression.²⁶ McKinney, Antoni, Kumar, Times, and McCabe (1997) used GI combined with music with 28 healthy adults and reported significant decreases in depression, fatigue, and total mood disorders between pretest and postsessions.²⁷ Identical outcomes were revealed in the study with a sample of 148 healthy adults, using relaxation and positive mental images. After two sessions, positive mood increased, and negative mood decreased.²⁸

Conclusion

The alcoholism is though identified as a medical problem has large spectrum of psychosocial difficulties for the family members of alcoholics, especially their spouses. The problems faced by the wives of patients with alcohol use disorder range from physical to emotional to social domains. Guided imagery significantly reduces depression, anxiety, and stress among wives of

patients with alcohol use disorder and increases their satisfaction. Guided imagery is a simple, cost effective, noninvasive, non-pharmacological complementary and alternative therapy to reduce the level of stress, anxiety and depression among wives of patients with Alcohol Use Disorder.

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