Scientific Research

An Exploratory Study: Reducing Nursing Students Stress Levels Facilitate Perceived Quality of Patient Care

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Abstract

The aim of this project was to examine if stress levels in Associate Degree (AD) nursing students can affect their perceived quality of care provided to patients. Nursing students experience tremendous amounts of stress especially during their clinical experience. High levels of stress may affect the quality of patient care provided. This project implemented a stress reducing workshop and an instructional deep breathing compact disk (CD) to determine the effects of this intervention upon the stress levels of nursing students and the quality of care provided to patients. Nursing students completed a workshop where recognition of stress producing situations and effective ways to deal with them were discussed. Each student was provided with a CD containing a ten minute instructional deep breathing exercise which they were asked to listen to five times a week for six weeks. Nursing students were asked to complete Cohen's Perceived Stress Scale (PSS) and the Student Perception of Quality of Patient Care Provided questionnaire prior to and after the implementation of the intervention. The results of the two questionnaires were compared to determine effectiveness of the stress reducing interventions. Using paired t scores, results demonstrated that students' stress levels were decreased and student's perception of quality of patient care provided improved after the stress reducing interventions.

Keywords

Nursing Student, Anxiety, Quality of Care Provided

1. Introduction

From the early beginnings of mankind, stress has been an inherent aspect of life. Stress is essential for survival.

In proper amounts, stress can encourage individuals to perform to the best of their abilities, yet ofttimes when stress exceeds the individual's threshold, it can have detrimental effects upon both physical and mental health. Stressors may be found in personal relationships, health issues, financial aspects, and with idealistic personal expectations. Stress in the nursing profession is an ongoing worldwide problem [1]. Of all health care professions, nurses have been found to have some of the highest levels of stress [2]. Factors leading to stress in nurses include; a highly demanding job with poor support, workload of patient care, rapidly changing circumstances, shortage of resources, professional conflict and staff, and emotional demands of caring for patients including dealing with death and dying [3] [4]. Stress is a contributing factor to high staff turnover, decreased quality and quantity of care, increased costs of health care and decreased job satisfaction [5]. Inexperienced nurses identified similar clinical sources of stress, and reported low levels of confidence in clinical skills as a further source of stress [4]. Lower pay, longer work schedules and increased use of technological knowledge, are likely to add to rather than replace the previously noted sources of stress. These factors are intrinsic to nursing and may be compounded by other environmental influences.

From a global perspective, undergraduate nurse education has changed significantly in the last decade with more emphasis being placed on student learning in the clinical environment. The purpose of nursing education is to provide the necessary theoretical knowledge and clinical experience to facilitate and prepare undergraduate nursing students to develop into the professional role of the nurse [6]. During this formal academic process, nursing students at all educational levels report high levels of stress and anxiety in the clinical setting. The clinical setting is a significant learning environment for undergraduate nursing students and is integral to the education of a nurse. The clinical learning component is a large part of the formal nursing education process. Learning that occurs in the clinical environment presents challenges that may cause students to experience increased stress and anxiety. For example, high levels of stress can affect student's clinical performance, presenting a clear risk to success in a clinical rotation. As advances in health care accelerate, the clinical settings will become progressively more stressful as new procedures and technologies are introduced.

Although the clinical component of nursing education cannot be eliminated from the educational process, introducing stress-reducing interventions have demonstrated to be highly successful in helping students to adjust to the demanding and rigorous schedule of the clinical education process. Introducing stress-reducing interventions led to increased or improved coping capacity in the clinical settings, which in turn greatly reduced the students' anxiety levels [7]. As nursing students graduate and enter the workforce, it will be necessary for students to continue to implement appropriate stress responses to help them adapt to the stress of performing daily patient care.

There is not a lack of stress reducing interventions available. Many successful interventions have been introduced to reduce stress levels in nurses. Interventions demonstrating positive effects include: aromatherapy, guided imagery, and deep breathing exercises [8] [9]. Mindful based stress reductions courses among nurses and student nurses have proven to be very effective in reducing stress [10] [11]. Group physical activity [12], visual methodology [13] and autogenic training [14], have demonstrated positive results in reducing stress in universal nursing students. Another stress reducing intervention that demonstrated success in reducing student nursing stress in the clinical setting is that of peer mentoring. Students were assigned a mentor who shadowed them in their clinical rotations. In studies involving international and national students, it was found that mentoring experiences decreased students' clinical stress [6] [15]. Conducting stress management workshops identifying stressors and ways to reduce stress have had positive outcomes. Stress management workshops which discussed identifying stressors and ways to manage stress among nursing students have also had a positive effect in reducing levels of stress [8].

Dealing with challenging patients and their families and difficult relationships with physicians, and poor supervision by staff nurses can result in the delivery of poor quality care by nursing students [16] [17]. Students who are under tremendous amounts of stress may also provide suboptimal nursing care [18]. The amount of stress exhibited by nursing students can affect the perceived levels of care provided to patients. Although stress is an integral aspect of a nursing students' life, providing positive interventions to help identify stressors and appropriate responses to those stressors can reduce stress levels. By reducing stress levels, nursing students may provide improved care to the patients.

Nursing students are not immune from these same types of stressors. Nursing students suffer from higher stress levels than any other health-related practitioners [19]. The results of these numerous studies directed the path of this project. This evidence-based practice study incorporated two stress reducing interventions in gra-

duating nursing students in order to decrease perceived stress levels and to increase perception of quality of patient care provided. Stressors are compounded more as new knowledge is presented in the didactic classroom and then incorporating that knowledge into the clinical setting. It has been found that nursing students had difficulty maintaining balance between home and work responsibilities [20]. Cultural diversities also revealed other types of stressors that contributed to stress levels. Faculty misunderstanding of the students' culture was also identified as a source of stress [21]. Nursing students in Iran indicated interpersonal and environmental sources of stress were reported more frequently than intrapersonal and academic sources [22].

Globally, nursing students are under tremendous amounts of stress especially during clinical settings [7] [23]. Working with preceptors, lack of professional knowledge and skills, poor staff relations, fear of making mistakes, using new equipment, and poor patient relationships are all types of stressors identified by students in the clinical areas. High levels of stress exhibited by students in the clinical practice setting can be detrimental to both the student and patient. Most nursing programs are limited in the amount of time apportioned to teaching students how to identify and manage extraordinarily high levels of stress that they will encounter in the clinical setting. Increased stress levels may lead to burn out of the students and potential harm to the patient. Students who are provided with knowledge to recognize the perception of threat may help reduce the physiological response of the body. Changing the way one responds to perceived stressors may reduce perceived levels of stress. Reducing perceived levels of stress may then also improve perceptions of providing higher quality of care to patients.

Aim

The aim of this evidence-based practice project was to implement stress reducing interventions in nursing students to increase their perceptions of quality of care provided to patients. The current evidence indicates stress-reducing interventions can effectively reduce anxiety levels in nursing students. Many interventions have shown benefits. For the purpose of this evidence-based practice project, a combination of an attendance of a stress reducing workshop and listening to instructional deep breathing relaxation exercises were implemented.

2. Method

2.1. Setting

This evidence-based practice project was implemented at a state sponsored higher educational institution in the state of Utah. This nursing school was established in 1953 to meet the growing health care needs. The School of Nursing offers the Practical Nursing (PN) to Associate of Science Degree Nursing (RN) to Bachelor of Science Nursing (BSN) to Master of Science in Nursing (MSN) via a ladder curriculum. The undergraduate and graduate nursing programs are accredited by the Accreditation Commission for Education in Nursing (ACEN). The School of Nursing currently graduates 700 nursing students a year with approximately 400 of those with an Associate Degree (AD) registered nurse degree. The university has five satellite campuses located throughout the state. This project was implemented at a satellite campus located fifteen miles from the main campus.

2.2. Sample

Forty students completing their last semester of a clinical preceptorship in the (AD) Registered Nurse program were approached to participate in this project. The purpose of the project was described and consents for participating was obtained from thirty students. Twenty students completed all components of the project including before and after intervention testing and information from those students were compared. Participants consisted of seventeen females (85%) and three males (15%). The majority of the participants were aged 18 - 24 (45%), 25 - 34 (35%) over 35 (20%). Nine participants were single and eleven were married. Eleven (55%) students did not have any children and six students (30%) had at least two children. Fifteen participants (75%) worked in the health care setting with 60% working at least eleven hours per week. Students were more likely to talk to their significant other (75%) when they were feeling stressed. It was interesting to note that none of the students talked to nursing faculty when they were stressed. Ten participants had participated in previous stress-reducing education. Table 1 summarizes the socio demographic information of the sample.

2.3. Instruments

The project utilized a self-reported questionnaire in three parts. The first part collected demographic characteris-

Table 1. Socio-demographic and professional information of the sample (N = 20).

	% of sample	N
Gender		
Male	15%	3
Female	85%	17
Age		
18 - 24	45%	9
25 - 34	35%	7
35 - 44	20%	4
Marital Status		
Single	45%	9
Married	55%	11
Children		
None	55%	11
1 - 2	30%	6
3 - 4	5%	1
More than 4	5%	1
No response	5%	1
Current employment in healthcare setting		
Yes	75%	15
No	25%	5
Hours working per week		
Not working	25%	5
Less than 10 hours/week	15%	3
11 - 20 hours/week	20%	4
21 - 30 hours/week	25%	5
Over 30 hours/week	15%	3
When stressed who do you talk to		
Significant other	75%	15
Roommate	15%	3
Faculty	0%	0
Spiritual leader	0%	0
No one	10%	2
Stress-reducing education		
Yes	50%	10
No	50%	10

tics including: age, gender, marital status, number of children, hours worked per week, type of employment, and any prior stress-reducing education. The second part included administration of the Perceived Stress Scale (PSS) before the intervention. The PSS developed by Sheldon Cohen [24] is the most widely used psychological instrument for measuring the perception of stress. The PSS is not specific to any population or career and it is a measure of the degree to which situations in one's life are appraised as stressful. The ten questions are of a general nature and are relatively free of content specific to any subpopulation group. Respondents report the prevalence of an item within the last month on a five-point Likert scale, ranging from never to very often. The PSS score was obtained by reversing the scores on the four positive items and then summing across all ten items. The PSS is not a diagnostic instrument; there are only comparisons between people in each sample. Permission for use of the scale is not necessary when use is for academic research or educational purposes. No reliability or validity information for this tool was provided by Cohen.

The Student Perception of Quality of Patient Care Provided (SPQC) [25] was developed and copyrighted by the author and was the third part administered. The focus of the respondents was nursing students providing patient care in the clinical area. A self-reporting twelve question tool was used. Respondents were asked to report

their perceived quality of care provided to patients. This tool included a five point Likert scale ranging from not at all to very much. This questionnaire was piloted with nineteen baccalaureate nursing students on the main campus after receiving prior Institutional Review Board approval (IRB). This tool was piloted for internal consistency and indicated a relatively high reliability. Pre and post intervention scores were compared and reported as group only information.

2.4. Ethical Issues

Since this change project was implemented with associate degree nursing students at a state sponsored higher institution located within the state of Utah, IRB approval was required from this institution. The institution's IRB guidelines for approval were followed and approval was obtained with an "exempt" status due to the low risk involved.

2.5. Data Collection Procedure

Project details were presented to the students and voluntary participation was encouraged. Written consents were obtained from those students who were willing to participate in the interventions. Prior to the implementation of the stress-reducing interventions, two evaluative tools were administered to those consenting to participate in the project. The two evaluation tools utilized during this project were the Perceived Stress Scale and the Student Perception of Quality of Patient Care Provided (SPQC). All students were administered the tools at the same time. All paper versions of the tools were collected by the project manager after completion. Thirty students initially agreed to participate in the evidence-based practice project. Twenty of the forty students in the class completed all aspects of the project.

The first intervention of the evidence based practice change project consisted of a two hour PowerPoint presentation explaining the concept of stress and ways to recognize and effectively manage stress levels. The second intervention consisted of listening to a ten minute instructional deep breathing compact disk (CD) and recording the number of times listened to each week for six weeks [26]. Each student received a random number that was placed on the demographic sheet and evaluative tools sheets. These same identifying numbers were used on the post-intervention evaluative tools administered to ensure matching of the same students before and after intervention scores. This maintained the participants' confidentiality.

2.6. Data Analysis

After six weeks of intervention, the PSS and the Student Perception of Quality of Patient Care (SPQC) tools were then re-administered and completed by the participants. Students were encouraged to continue listening to the deep breathing exercise as needed throughout the rest of the clinical experience. Twenty participants completed the post-intervention evaluative tools and returned the listening log. Students in the evidence-based practice change project had pre-intervention PSS scores and a repeat measurement six weeks later post-intervention. Students also had a pre-intervention SPQC score which had a repeat measure six weeks later. After this data was collected, a paired t-test was used to determine if there was a difference between the pre-intervention scores and the post-interventions scores for both tools.

Pre-intervention PSS Scores ranged from 5 to 36, (M = 19.05, SD = 6.94, N = 20). A score of 40 indicates the highest level of stress. The higher the score, the more stress the participant has experienced in the last month. After the six week intervention, the post-intervention PSS scores ranged from 8 - 22, (M = 14.7, SD = 5.02). This indicated that stress levels decreased from the pre-intervention scores.

Pre-intervention SPQC scores ranged from 46 to 66, (M = 59.6, SD = 5.88) with 72 being the greatest perception of quality of patient care provided. The higher the score, the better the quality of care provided to patients as perceived by the student. After the six week intervention, the post-intervention SPQC scores ranged from 57 to 72, (M = 64.15 SD = 4.58). The mean difference reported was 4.55 in the post-intervention score. This indicated the student's perception of quality of patient care provided increased from the pre-intervention scores. The results of the interventions are presented in Table 2. The paired t-tests of both PSS and SPQC, demonstrate that the mean differences were statistically significant with both tests. Students' stress levels were decreased and student's perception of quality of patient care provided improved after the six week intervention of the stress-reducing interventions.

Table 2. Results of two stress interventions upon student preceptions of quality of patient care provided.

Tool	Pre-Intervention Mean	Post-Intervention Mean	Difference of Mean	SD (Difference)
Perceived Stress Scale (PSS)	19.05	14.7	4.35	6.47
Student Perception of Quality of Care Provided (SPQC)	59.6	64.15	4.55	5.23

Perceived Stress Scale (PSS). A score of 40 indicates the highest level of stress. The higher the score, the more stress the participant has experienced in the last month. Student Perception of Quality of Care Provided (SPQC). A score of 72 demonstrated a high level of perception of quality of patient care provided.

3. Discussion

The stress reducing interventions results demonstrated that introducing and implementing stress-reducing interventions lowered the students stress levels and increased their perception of quality of care provided. The implementation of this project has demonstrated the importance of incorporating stress reducing interventions into all nursing curricula. Stress is a global issue and many studies have focused on the causes of stress in nursing students. Since stress cannot and should not be alleviated, it is critical for nursing faculty to incorporate changes into curriculum which directly identify stressors and appropriate coping strategies employed. Because additional stressors may be placed upon the students for obtaining a National Council Licensure Examination (NCLEX) passing score, the nursing educators must carefully examine curriculum demands, especially in relation to the potential for academic overload of students.

Faculty may not be aware of the accurate stress levels of their nursing students. Faculty are trained to intervene when academic failure is seen, but may be unaware of other factors of pressure and personal concerns that are contributing factors. It is essential for educators and clinical faculty be sensitive of these stressors and to provide students with effective coping strategies to deal with the inevitable source of stress present during the undergraduate nurse education process [27] [28]. Educators have the potential to influence the development of their students as they transition into nurses capable of handling the rigors of the profession [29]. The implication of this evidence-based practice project for nursing education is that because nursing can be a stressful profession and stress contributes to burnout, educators have an obligation to prepare graduates to successfully manage stress just as they prepare their graduates to provide high quality patient care.

4. Conclusion

Stress is an inevitable part of life. Stress can be conducive to the learning environment or it can be detrimental. It cannot be alleviated, but it can be identified and appropriate coping mechanisms employed. It has long been known that nursing students are under considerable stress during their academic and clinical educational experiences. This is evidenced by the international and national plethora of studies addressing the stress of nursing students particularly in the clinical setting. Students have reported feeling inadequately prepared to cope with the strain of professional nursing [30]. It is during the educational process that stress reducing interventions must be implemented into the nursing curriculum to help them transition into the professional role of the nurse. The purpose of this project was to determine the impact of stress interventions upon the nursing students' stress levels and students' perception of patient care provided. The implementation of a stress workshop and listening to a deep breathing CD decreased the perceived stress scales of the students. Additionally, students' perceptions of providing quality care improved after the interventions. From this evidence-based practice project, it can be concluded that stress interventions are beneficial in reducing stress levels in nursing students. Additional conclusions can be drawn that reducing the students stress levels can improve perception of patient care provided. Stress interventions do reduce nursing students' perceived levels of stress. The type of stress-reducing intervention may be of less importance than actually educating and employing of the stress-reducing techniques. It is vital to reduce students stress and provide optimal patient care by implementing stress-reducing interventions into the nursing school curricula. More studies are needed to determine the best way to teach students to manage their stress and best design nursing curricula to implement those stress-reducing interventions.

Conflict of Interest Statement

The author is a faculty member at the study institution but holds no supervisory rights for the students involved

in the project.

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