

Effectiveness of an Educational Program about Stress Mitigation on Critical Care Nurses

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Abstract: Background: Due to daily patient care, shift work, unpredictability of critical care environment, critical care nurses face a great amount of stress in workplace which puts them in a real risk for physical, psychosocial upsets and burnout. Aim: this study was to assess the effectiveness of an educational program about knowledge of stress mitigation methods on critical care nurses. Methodology: It was a pre/post interventional, hospital-based study, the study subjects were 200 critical care nurses (34 males 17% and 166 females 83%) working for one year or more in critical care settings (8 units) in five public hospitals, Khartoum state, Sudan. A structured face to face interview questionnaire was used pre and post educational program. The program was done by lectures about stress as work-related hazard, causes of stress, and mitigation methods of Stress, same contents taught in prescribed units as sitting group's discussion and direct individual educational sessions, all respondents were given training sessions on relaxation exercises techniques. Results: Knowledge about stress as one of work related hazards and causes of stress in critical care areas was improved in post program assessment. Also in result of stress mitigation methods, respondents showed improvement in post educational program assessment. Conclusion: The educational program for critical care nurses had efficient results, evidenced by the improved results of critical care nurses' knowledge about stress as an occupational hazard in critical care setting, causes and their abilities to overcome stress, and mitigation methods of stress in critical care units in post educational program assessment results.

Keywords: Stress mitigation, Critical care nurses, burnout

1. Introduction

Stress is body state of tension, which result from numerous stressors facing people, the response to stress results when the individual fails to cope with stressors. Nurses in critical care units face great amount of stress, which is recognized by all health professionals. their specialty, concerns with delivery of care for physiologically unstable patients, with life-threatening condition and it is a highly interdisciplinary specialty, this give big chance for those nurses to face more stress. Death and dying are the major stressors in critical care units, the unpredictability of work environment is another leading stressor, other factors of stress also every step must be charted, frequent situations of acute crisis, physical dangers (inadequate protection from x-rays, needles, isolation patients, and those who are delirious), constant sounds of moaning, crying, screaming, buzzing, and beeping monitors, gurgling suction pumps, and whooshing respirators.

The accumulation of stressors from this intense environment result in individual's suffering stress which has many effects on nurses, can be divided to behavioral effects as irritability, forgetfulness, disorganization in thinking, overindulge in drugs, alcohol, accidents, poor relationship with others, poor work performance, physical effects e.g. Headaches, backache, insomnia, gastrointestinal upset, tightness in chest, nausea, dizziness, excessive sweating and unexplained shortness of breath, heart diseases, hypertension, ulcer, poor general health, and emotional effects as tiredness, anxiety, irritability, depression, lack of concentration low self-esteem, depression, suicide.

Critical care nurses also are vulnerable to burnout as a response to chronic emotional strain, the behavior common in burnout include absenteeism, anger, frustration, anxiety,

and loss of commitment, which lead the employee either leaves the job or remains in the position functioning ineffectively that increase cost of health services.

Stress mitigation is an important issue for critical care nurses, it can be attaining by relaxation exercise e.g. deep breathing exercise, coping and adaptation and social support e.g. beer social groups and neighborhood social visits.

Since work overload and working in three shifts, in Critical care settings such as oncology unit, intensive care units or cardiac care unit, and caring of incurable patients puts a considerable psychological, spiritual, and physical pressures on nurses. this study was conducted to evaluate the effect of teaching program of stress mitigation methods among critical care nurses to participate in making work place with low bad effects.

2. Material and Methods

This study was pre - post-intervention, one group, hospital-based study carried out during 2017, (8 Intensive care units in Khartoum state, 5 governmental hospitals) Sudan, conducted to evaluate effectiveness of a program about stress mitigation methods on nurses who work in critical care units.

The study population was all nurses working in coronary care unit CCU, intensive care unit ICU, in Khartoum state public hospitals for one year or more. Three hundred and twenty (320) nurses. The participants' number who agreed to participate were two hundred (200) nurses, the rest of the population dropped because of an individual or institutional causes. An interviewing structured closed ended questionnaire was used as study tool, to identify nurses' knowledge about stress as one of occupational hazards in

critical care areas, causes of stress, and mitigation methods of stress.

After the first questionnaire administered with participants, an educational program was conducted by lectures in each hospital conference hall consisting purposes of occupational health, occupational hazards types, causes, preventive methods, stress and its effects and training session on relaxation exercises technique. same contents of program taught in other educational types by discussions in the prescribed units as sitting group's discussion, and direct individual educational session.

Data were assessed, coded, managed, and analyzed by Statistical Package of Social studies (SPSS), Significance differences of results were tested by Pearson's chi square, the p value was accepted below 0.05.

3. Results

The study sample were 200 critical care nurses 17% males and 83% females from five public hospitals, 43.5% of them length of experience from one to five years, and 67% held bachelor degree [figure 1].

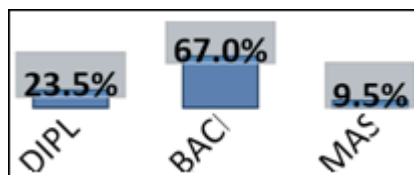


Figure 1: Respondents' graduation level, D = diploma, B = bachelor, M = master degree

Table 1: Knowledge of critical care nurses about stress as one of work area hazards in Khartoum state 5 public hospitals

Mentioning stress as one of workplace hazards	Pretest		Posttest		Total
Right answer	68	34%	199	99.5%	267
Wrong answer	132	66%	1	0.5%	133
Total	200	100%	200	100%	400

P value .000

Less than the half of participants mentioned stress as a hazard in pretest while most of them mentioned stress as one of hazard in posttest assessment.

Table 2: Knowledge of critical care nurses about causes of stress in work area in Khartoum state 5 public hospitals

Causes of stress as work environment or conflicts	Pretest		Posttest		Total
Right answer	194	97.0%	200	100.0%	394
Wrong answer	6	3.0%	0	0%	6
Total	200	100%	200	100%	400

P value .030

Causes of this stress hazard known by most participants in first assessment.

Table 3: Critical care nurses' history of experiencing stress in work

Self-experience of stress in work	Pretest		Posttest		Total
Right answer	199	99.5%	200	100.0%	399
Wrong answer	1	0.5%	0	0%	1
Total	200	100%	200	100%	400

P value 1.0

Respondents' answer about experience of feeling stressed in work place was high in pretest result.

Table 4: critical care nurses' ability to manage work-related stress

Do you have the ability to manage stress?	Pretest		Posttest		Total
Right answer	23	11.5%	197	98.5%	220
Wrong answer	177	88.5%	3	1.5%	180
Total	200	100%	200	100%	400

P value .000

The result of respondents' in posttest shows the effect of teaching stress mitigation methods.

Table 5: Knowledge of critical care nurses about relaxation exercises for stress mitigation in Khartoum state, 5 public hospitals

Mitigation of stress by relaxation exercise	Pretest		Posttest		Total
Right answer	29	14.5%	198	99%	227
Wrong answer	171	85.5%	2	1%	173
Total	200	100%	200	100%	400

P value .000

Posttest results were improved.

Table 6: Knowledge of critical care nurses coping and adaptation for stress mitigation in Khartoum state, 5 public hospitals

Mitigation of stress by coping and adaptation	Pretest		Posttest		Total
Right answer	89	44.5%	199	99.5%	288
Wrong answer	111	55.5%	1	5%	112
Total	200	100%	200	100%	400

P value .000

Respondents gained a noticeable knowledge evidenced by elevation of right answers in posttest results.

Table 7: Knowledge of critical care nurses about social support for stress hazards mitigation in Khartoum state, 5 public hospitals

Mitigation of stress hazards by social support	Pretest		Posttest		Total
Right answer	34	17%	195	97.5%	229
Wrong answer	166	83%	5	2.5%	171
Total	200	100%	200	100%	400

P value .000

Social support as mitigation method of stress in pretest was known by less than one quarter of respondents.

4. Discussion

200 critical care nurses (17% males and 83% females) from five hospitals who responded to study most of them 67% were graduated by bachelor degree, higher female nurses number than male nurses, same as study published in 2011

by Amosu.M. Department of Nursing, Igbinedion University, Okada, Nigeria, studied the Level of Knowledge Regarding Occupational Hazards among nurses in Abeokuta, Ogun State, Nigeria [18].

The study highlights the clear effectiveness of study interventions evidenced by the improved results of CCNs knowledge about stress as one of work hazards to 99.5% in post education results in table [1].

A considerable portion of the respondents reported increased level in knowledge about causes of stress faces them in work place even though the hazard name not mentioned by them in first question. The possible answers for these results might reveal the actual presence of stressors in their areas, also might reflect that when hazard mentioned for respondents became easier for them to find out its causes table [2]

Study published in 2010 by Ticiani D. et al, nursing department, University of Brasilia [20] showed presence of stress and its effects among nurses like our responders most of them had experience of stress in workplace, table [3]

Majority of respondents 197 nurses [98.5%] answered positively for having abilities to manage and decrease work stress after the discussion of mitigation ways as in table [4], they preferred relaxation exercise during shift break time, and engaging in social programs.

It has been recommended that relaxation exercises are important during shift, improving in post study interventions program results about stress mitigation by relaxation exercise results were 14.5% in pretest and 99% after the intervention, table [3]. Coping and adaptation method post educational program 99.5% table [4]. Also mitigation by social support 17% became 97.5% after program, table [5]. These findings supported study Published in 2014 conducted by Chen-Yin Tung, in Occupational Hazards

Education for Nursing Staff through Web-Based Learning, Taiwan, [17] after web-based learning, post-test scores of the experimental group were higher than the control group in terms of knowledge, attitudes, and in their knowledge about the prevention of all occupational hazards.

5. Conclusion

Those in the critical care nursing profession are susceptible to a number of work hazards, to work in a stressful place as intensive care units, nurses need to follow mitigation of stress measures to prevent and treat the effects of stress to stay healthy physically and mentally. Nurse with research skills and a familiarity with the tasks, and physical environment of the critical care unit have an opportunity to study and contribute to the understanding of stressors in work area and ways to manage and to decrease their effects.

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References

- [1] John M, Suzan L, *Critical care nursing*, third edition, W. B. Saunders Company, Philadelphia. 2009, p 98-111.
- [2] NIOSH, CDC, Occupational hazards in hospitals, 2008 July, No – 136, available in www.cdc.gov/niosh.
- [3] Smith M.R, Roy T.A. Authentic leader creating healthy work environments for nursing practice. *American J. Critical Care*, 2007, 15: 256-267.
- [4] Hunt R. *Introduction to Community- Based nursing*, fifth edition, Walter Kluwer health/ Lippincott Williams & Williams, Philadelphia 2013, p 243.
- [5] American Association of Critical Care Nurses (AACN). Standards for establishing and sustaining healthy work environments: a journey to excellence. *American Journal of Critical Care*, 2008, 14: p 187-197.
- [6] Baumann, A. *Positive practice environments: quality workplaces = quality patient care: information and action tool kit*. International Council of Nurses, 2008, available in <http://www.icn.ch/indkit>.
- [7] Burns S. *Essentials of critical care nursing*, second edition, Mc Graw Hill, New York, 2014, p 30, 33.
- [8] Gallo M, Andrei S. *Critical Care Nursing*, seventh edition, Lippincott-Raven publishers, USA. 2007, p 121- 134.
- [9] Sedlak, C. Nurse Safety: Have We Addressed the Risks?" *Online Journal of Issues in Nursing*. 2010, 9: 3- 5.
- [10] Gorman T. Jonathan D. controlling health hazards to hospital workers: New Solution, *The journal of occupational health policy*, 2013, 23: p 25- 28.
- [11] Encyclopedia of Occupational Health and Safety, 5th edition, ILO, Geneva, 2000, 1: p. 6- 12, 2: p 34- 97.
- [12] Beaton R., Promoting occupational health nursing training, *Journal of Workplace health and safety*, March 2012, 59(9): p 401- 405.
- [13] Alli B.O. *Fundamental principles of occupational health and safety*, 2nd edition, Geneva: ILO, 2008. E-book.
- [14] Van Den M, De Jonge J. Managing job stress in nursing: what kind of resources do we need? *Journal of Advanced Nursing*, 2008, 63: p 75-84.
- [15] Harry D. *Occupational health of health care workers*, Tarot, Estonia, 2010, p 33, 34.
- [16] James D. *A new look at nursing safety*, second edition, BMJ publishing group, London, 2010. E-book.
- [17] Chen-Yin Tung, Occupational Hazards Education for Nursing Staff through Web-Based Learning in Taiwan, *International Journal of Environmental Research and Public Health*, 2014, 13035-13046: 10.3390.
- [18] Amosu A.M. The level of knowledge regarding occupational hazards among nurses in Nigeria, *Journal of Biological sciences*, 2011, 3(6): P 586- 590.
- [19] Castro, AB. Occupational Health and Safety Issues among Nurses in the Philippines, 2009, available from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2797477>.
- [20] Ticiani D, Shimizu H, Branco A. Occupational Health

Hazards in ICU Nursing Staff, Brazil, *Journal of Nursing Research and Practice*, 2010: ID 849169.

- [22] Carlos A, stress in nursing work in ICU, Israelita hospital, Brazil, *Latino Americana de Enfermagem*, 2008, 16:2008.
- [23] Ndejjo R. et al. (2015), Occupational Health Hazards among Healthcare Workers in Kampala, Uganda, *Journal of Environmental and Public Health*, 2015: Article ID 913741.
- [24] Tuvadimbwa J, knowlege and practice among nurses on occupational hazards in Namibia, 2015, available from www.unam.na.
- [25] American Board of Occupational Health Nursing - ABOHN. Job analysis survey of occupational health nursing practice. Hinsdale, Illinois; 1999.