



GLOBAL JOURNAL OF ADVANCED RESEARCH
(Scholarly Peer Review Publishing System)

Health Status of Nurses Working at a University Hospital in Bangladesh

Rokshana Akter Roji (RN, MSN)

Nursing Officer
Kurmitola General Hospital, Dhaka,
Bangladesh
ra.roji2017@gmail.com

Khaleda Akter (RN, PhD)

Faculty, Department of Mental Health and Psychiatric
Nursing, National Institute of Advanced Nursing
Education and Research (NIANER), Mugda, Dhaka,
Bangladesh.
khaledarnteacher@gmail.com

Jinnat Rehana (RN, MSN)

Faculty, Department of Mental Health and Psychiatric
Nursing, National Institute of Advanced Nursing
Education and Research (NIANER), Mugda, Dhaka,
Bangladesh.
riparaya@gmail.com

Mohammad Nurul Anowar (RN, PhD)

Faculty, Department of Adult and Elderly Health
Nursing, National Institute of Advanced Nursing
Education and Research (NIANER), Mugda, Dhaka,
Bangladesh.
mn.anowar@yahoo.com

ABSTRACT

Nurses form a fundamental part of the health workforce. While nurses' health is at risk as comparing with other people due to workplace stress. The purpose of the study is to examine the health status of nurses working at a university hospital in Bangladesh. A descriptive cross-sectional study was conducted among 94 nurses using convenience sampling technique. Two self-administered questionnaires including socio-demographic and SF health status questionnaire were used. Data were analyzed by using descriptive and inferential statistics. The mean age of the participants was 28.15. The total mean score of health status scale was 3.18 (out of 5). Bi-variate analysis showed the significant socio-demographic variables associated with health status in terms of type of unit ($p=.001$), shift work ($p=.010$), job stress ($p=.000$) and job satisfaction ($p=.038$). The study explored the poor health status of ICU nurses who worked in night shift as well as stressed and dissatisfied with job. Therefore, overall findings suggested improved workplace conditions and promoted health status can be ensured by coping techniques among nurses.

Keywords: Bangladesh, General Ward, Health status, ICU, Nurse, Stress

1. INTRODUCTION

Nurses are vulnerable both minor and major psychiatric morbidity with their contributing job strain. Furthermore, Nursing is associated with feelings of tension, anger, anxiety, depressed mood, sleep disturbance and high levels of stress which can have negative consequences not only for their physical and mental health, but their performance and their organizations' productivity. Occupational stress has a significant impact on workers' health and well-being, turnover, their quality of family life and job satisfaction.

So, mental health nursing is the fundamental rights of nurses. This paper mainly explored the significance of mental health status of nurses in occupational and personal life.

What is known on the subject?

- Nurses who work in intensive care units, due to stress, show significantly higher depression, anxiety and irritability compared to other units.
- Past research suggested that majority nurses were experienced stress due to heavy workload, limited number of nurses and lack of psychological support.
- They are at risk for physical and psychological problems. It negatively effects on high-quality health care of patients.
- There is a very limited study providing appropriate knowledge about the health status of nurses in Bangladesh. These studies mainly focus on the nurses involved in healthy lifestyles, where they have a greater impact on their patients because healthier nurses are better health promoters.

What this paper adds to existing knowledge?

- Counseling, assistance in problem-solving and stress management classes were also methods listed as organizational supports that improved by increasing organizational social support to minimize the effect of stress on their health and work.
- Finding available resources such as support groups or mental health services that can learn how to deal with their psychological issue.
- Exercise, open atmosphere for discussion, relaxation and taking break were the coping strategies reported by nurses which easily support stress reduction programs.

What are the implications for practice?

Hospital authority should plan and implement for enhancing better quality of life for both nurses and patients ensuring better working environment through providing facilities to cope with mental demands, develop stress-releasing strategies and work-rest schedules to minimize the effect from stress.

2. BACKGROUND

Health status refers to the relative level of wellness and illnesses of individual, taking into account the existence of physiological or biological dysfunction and functional impairment (American Thoracic Society, 2007). While mental and physical health of nurses is mandatory for strengthening and maintaining the educational, social, and professional performance of life. Nurses form a fundamental part of the health workforce worldwide where their contribution is crucial to provide safe care. Nurses are signified as the forefront of delivering direct health care and health education to patients (Blake & Harrison, 2013; Nahm, Zhu, Warren, & Brown, 2012). Consequently, nurses also belong to the optimal position for serving as the role models to the general people (Blake & Harrison, 2013). However, several researches regarding nurses' health status have also revealed the poor health condition of nurses (Sarafis, 2016; Ramezanli et al., 2015). Initially, health designates the condition of complete physical, psychological, and social well-being as well as not only the absence of infirmity or disease (WHO, 2014).

Mental illness is one of the prime factors which impede to deliver quality nursing services efficiently (Valizadeh, Farna, Zamanzadeh & Bafandehzنده, 2012). Nurses who have unhealthy work-related behavior and experience, are risky with adverse mental & physical health (Jui, 2016). Nurses are adversely suffering from several health-related difficulties due to working in an unhygienic environment, exposing frequent infectious agents, insufficient nutrition, excessive workload and stress related to their job (Nahm et al., 2012). These mentioned aspects are the principal causes of physical and psychological health problems among nurses (Swapnil, Harshali & Snehal, 2016; Sarafis et. al., 2016). According to World Health Organization, 450 million people suffer from mental disorders among all leading causes of ill-health and disability worldwide now (WHO, 2001). Yet in the worldwide study, about 27% of hospital workers were affected by occupational stress and various mental health problems in the south of England (Mark & Smith, 2012). Many evidences suggest that stress among nurses is an amazing consequence of the challenging and high pressured job condition. Nurses, who are working in the Intensive Care Units (ICU), are vulnerable to highly stressful actions than nurses in other units (Azizollah, Zaman, Khaled & Razieh, 2013; Garcia-Izquierdo & Rios-Risque, 2012). Higher job stressors may result in insomnia, headache, peptic ulcer, emotional disturbances, and musculoskeletal pains (Al-Homayan, Shamsudin, Subramaniam & Islam, 2013). Besides, Shift work (especially night shift) has a negative impact on job performance, sleep, obesity, overweight, negative health behaviors such as physical inactivity, unhealthy eating habits and increased job-related stress (Abdalkader & Hayajneh, 2008). For instance, a high percentage of nurses who undertake shift works are affected not only on mental and physical levels but are also squeezed in terms of their adaptability to the family (Tai et al., 2014). However, high-quality interventions to change nurses' physical activity are inadequate and scarce (Torquati, Pavey, Kolbe-Alexander & Leveritt, 2016).

Knowingly, Nurses play a vital role in providing health care services. Nurses' health is important not only as members of the general public but also as providers of health care. But in Bangladesh, a population-nurse ratio is 3101:1 (Human Resources Reports, 2017), a bed-nurse ratio of 13:1, and a doctor-nurse ratio of 2.5:1. This is far little of the global standard for bed-nurse ratio of 4:1 and the

doctor-nurse ratio of 1:3. Thus, there is an acute shortage of nurses for providing inpatient care (Bangladesh nursing & midwifery council, 2013). The international standard for the nurse-patient ratio is 1:4 for the general care and 1:1 for intensive care. In the case of Bangladesh, the ICU nurse-patient ratio is 1: 4. The nurses in Bangladesh has a lot of work pressure to meet patient health care requirements, a situation that could negotiate not only the nurses' health but also his/her appointment with health care when ill. This study is necessary for providing professional nurses more understanding about them. The findings may not be inferred to developing countries including Bangladesh. This research has been expected nurses with good health status to enjoy not only a better quality of life and act as a role model in the workplace, but also have reduced stress, which increases retention rates and the quality of nursing care.

3. OBJECTIVE OF THE STUDY

The aim of this study is to explore the health status of nurses working at a university hospital in Bangladesh.

4. METHODS

A descriptive cross-sectional study was conducted to examine the health status of nurses working at Bangabandhu Sheikh Mujib Medical University (BSMMU) in Dhaka. The study participants as estimated by using power analysis with a significance (α) level of 0.05, an expected power of 0.80 ($1-\beta$), and an effect size of 0.30 (γ). Therefore 94 nurses was selected using convenience sampling technique with meet the following inclusion criteria: those who are available and mentally sound, co-operative and willing to participate, age between 21-35 years and signed informed consent. The questionnaires were consisted of following two parts.

(a) Socio-demographic questionnaire: There are 11 items question to develop by the researchers to identify the socio-demographic characteristics of participates. it includes nurses information related to age, sex, professional qualification, marital status, years of experience, workplace, monthly income, working shift, stressful job and job satisfaction.

(b) Health status questionnaire: The researcher used SF-36 health status questionnaire to assess the health status of nurses working at hospital in Bangladesh. The SF-36 indicates overall health status. The SF-36 items questionnaire developed in 1992 (Ware & Sherbourne, 1992). This scale consisted of 36 items including 8 dimensions. But some items do not resemblance with the contemporary trends of Bangladesh. Therefore, researchers deleted 13 items and 2 dimensions for better analysis. Thus, researchers picked 23 items with 6 dimensions.

Data Collection Method

After approval from the IRB of NIANER (IRB No. Exp. NIA-S-2018-34) and BSMMU and permission was taken from the director of BSMMU. Data were collected by face-to-face interview through structured questionnaire which was taken about 15-20 minutes. Confidentiality and anonymity were strictly maintained. The study was conducted between from July 2018 to June 2019. All the data were kept by the researcher for further data analysis.

Data Analysis

Data were analyzed by using Statistical Package for Social Science (SPSS) version 23. Socio-demographic data were described by frequency, percentage, mean, and standard deviation. Inferential statistics were used to examine the relationship between socio-demographic characteristics and health status of nurses by using Pearson correlation test, ANOVA and t- test.

5. RESULTS

Demographics characteristics of the study participants

Table 1 showed the distribution of socio-demographics characteristics of the study population. A total of 94 participants were enrolled in the study. The mean age of the participants was 28.15(SD = 3.023), ranging from 23-35 years. Out of 94 nurses, 4(4.3%) were male and 90(95.7%) were female. Most of their religion was Muslim (67%); and hold a diploma level education (60.60%), MSN (1.1%) and BSN (38.3%). Maximum were married (59.60%). Almost all of them were with 1-5 years experiences which mean were (4.19) and average monthly income was 31957.45 BD Taka. Most of them 63(67.0%) preferred day shift. Among the participants (66.0%) sometimes felt stress and (51.1%) were dissatisfied, neuter (26.6%), and only (22.3%) satisfied with their job.

Table: 1 Socio-Demographic characteristics of participants (N=94)

Variables	Categories	N(%)	M(SD)
Age			28.15(3.023)
Gender	Male	4(4.3%)	
	Female	90(95.7%)	
Religion	Muslim	63(67.0%)	
	Non- muslim	31(33.0%)	
Marital Status	Married	56(59.6%)	
	Single	38(40.4%)	
Professional qualification	Diploma	57(60.6%)	
	MSN	1(1.1%)	
	BSN	36(38.3%)	
Working experience			4.19(2.833)
Type of unit	Intensive Care Unit	47(50.0%)	
	General ward	47(50.0%)	
Monthly income			31957.45(5790.082)
Prefer shift work	Days	63(67.0%)	
	Evenings	11(11.7%)	
	Nights	5(5.3%)	
	Rotate between shifts	15(16.0%)	
Stress with job	Often	16(17.0%)	
	Sometime	62(66.0%)	
	Seldom	12(12.8%)	
	Never	4(4.2%)	
Job satisfaction	Satisfied	21(22.3%)	
	Neuter	25(26.6%)	
	Dissatisfied	48(51.1%)	

Distribution of health status of the study participants

Table 2 showed the distribution of the health status of the study participants. The result found that out of 94 participants the average score of health status scale was 3.18(.609). Health status subscale factors, physical health problems 3.45(.892) were the highest mean score which indicated that the good physical health condition of the nurses. The mean scale score for mental health 2.90 (.468) were unexpectedly low which reflects that most of the time nurses mental health condition were worse. Among participants 38(40.4%) were good health status and 13(13.8%) were poor. Some of the time, Vigorous activities and moderate activities 30(31.9%) were limited in nurses health. In the physical health problems dimension, 27(28.7%) were not difficulty performing the work but Only 5(5.3%) were difficulty performing the work which affected nurses daily activities . On the other hands, 24(25.5%) emotional problems were moderate interfered with normal social activities. Among participants, 28(29.8%) were mild bodily pain and 25(26.6%) never pain interfered with normal work. In the mental health dimension, most of the time, 50(53.2%) were very nervous person and some of the

time, 29(30.9%) felt calm and peaceful and 24(25.5%) felt so down. Among nurses, Some of the time, 27(28.7%) were happy person and 31(33.0%) were felt downhearted and blue and most of the time, 47(50.0%) felt tired where only 3(3.2%) never felt tired.

Table 2: Distribution of health status of the study participants (N=94)

Items	1	2	3	4	5	M(SD)
	n(%)	n(%)	n(%)	n(%)	n(%)	
General health						3.15(1.009)
In general, my health	15(16.0)	126(17.0)	38(40.4)	12(12.8)	13(13.8)	
I am as healthy as anybody I know	23(24.4)	15(16.0)	32(34.0)	9(9.6)	15(16.0)	
I expect my health to get worse	5(5.3)	12(12.8)	16(17.0)	29(30.9)	32(34.0)	
Limitations of activities						3.26(.766)
Vigorous activities	6(6.4)	9(9.6)	30(31.9)	26(27.7)	23(24.4)	
Moderate activities	9(9.6)	15(16.0)	30(31.9)	24(25.5)	16(17.0)	
Lifting or carrying groceries	7(7.4)	22(23.4)	32(34.0)	19(20.2)	14(14.9)	
Climbing several flights of stairs	7(7.4)	24(25.5)	20(21.4)	21(22.3)	22(23.4)	
Bending, kneeling	15(16.0)	19(20.2)	32(34.0)	13(13.8)	15(16.0)	
Walking more than a mile	6(6.4)	16(17.0)	29(30.9)	22(23.4)	21(22.3)	
Walking several blocks	10(10.6)	17(18.1)	20(21.3)	27(28.7)	20(21.3)	
Physical health problems						3.45(.892)
Accomplished less than you would like	5(5.4)	13(13.8)	19(20.2)	35(37.2)	22(23.4)	
limited in the kind of work	7(7.4)	13(13.8)	36(38.4)	24(25.5)	14(14.9)	
difficulty performing the work	5(5.3)	20(21.3)	19(20.2)	23(24.5)	27(28.7)	
Social activities						3.38(1.160)
Emotional problems interfered with your normal social activities	8(8.5)	23(24.5)	24(25.5)	17(18.1)	22(30.4)	
During the past 4 weeks, how much of the time has your physical health	6(6.4)	24(25.5)	21(22.3)	17(18.1)	26(27.7)	
Pain						3.27(1.257)
Bodily pain	5(5.3)	28(29.8)	17(18.1)	19(20.2)	25(26.6)	
pain interfere normal work	13(13.8)	23(24.5)	14(14.9)	19(20.2)	25(26.6)	
Mental Health						2.90(.468)
Nervous person	15(16.0)	50(53.2)	26(27.7)	3(3.2)	0	
Felt so down	10(10.6)	23(24.5)	24(25.5)	18(19.1)	19(20.2)	
Felt calm and peaceful	5(5.3)	22(23.4)	29(30.9)	24(25.5)	14(14.9)	
Felt downhearted and blue	5(5.3)	23(24.5)	31(33.0)	23(24.5)	12(12.8)	
Happy person	8(8.5)	18(19.1)	27(28.7)	27(28.7)	14(14.9)	
Felt tired	9(9.6)	47(50.0)	26(27.7)	9(9.6)	3(3.2)	
Total Mean 3.18(.609)						

Relationship between demographic characteristics and health status.

Table 3 denoted that the relationship between demographic characteristics and health status. Working experience and monthly income had negative correlation with their health status which were respectively $r = -.056(.591)$ and $-.025(.812)$. These results were reported that there was no statistically significant relationship. There were a significant relationship between type of working unit and health status ($t = -3.368, p = .001$). It is indicated that, nurses who had worked in general ward ($M = 3.38$) were good health status compared to those who worked in ICU ($M = 2.98$). Those who were worked in day shift showed significantly higher health status compared who were others shift ($F = 4.013, p = .01$). Nurses who had no history of job stress health status were good compared to those who had history of job stress ($F = 8.517$). Those differences were highly statistical significant results ($p = .000$). Finally, for health status of nurses, results showed significant differences by job satisfaction ($F = 3.392, p < .05$). On the other hands, among age ($p = .445$), gender ($p = .786$), religion ($p = .412$), Marital status ($p = .931$), and Professional qualification ($p = .275$), there were no statistically significant difference with health status.

Table 3: Relationship between socio demographic characteristics and health status of participants ($N = 94$)

Variables	N	Health Status	
		M(SD)	T/F/r(p)
Age			.817(.445)
21-25	23	3.30(.571)	
26-30	55	3.17(.623)	
31-35	16	3.05(.620)	
Gender			-.273(.786)
Male	4	3.09(.385)	
Female	90	3.49(.618)	
Religion			.825(.412)
Muslim	63	3.19(.655)	
Non Muslim	31	3.16(.512)	
Marital Status			.087(.931)
Married	56	3.18(.609)	
Single	38	3.17(.617)	
Professional qualification			1.097(.275)
Diploma	57	3.23(.631)	
BSN or Above	37	3.10(.572)	
Working experience			-.056(.591)
Type of unit			-3.368(.001)
Intensive care unit	47	2.98(.513)	
General ward	47	3.38(.636)	
Monthly incomes(BDT)			-.025(.812)
Prefer shift work			4.013(.010) ^{a>b>d>c}
Days ^a	63	3.29(.564)	
Evenings ^b	11	3.09(.522)	
Nights ^c	5	2.42(.708)	
Rotate between shifts ^d	15	3.03(.654)	
Stress with job			8.517(.000) ^{d>b>c>a}
Often ^a	16	2.66(.586)	
Sometimes ^b	62	3.34(.522)	
Seldom ^c	12	2.88(.444)	
Never ^d	4	3.57(.609)	
Job satisfaction			3.392(.038) ^{a>b>c}
Satisfied ^a	21	3.44(.428)	
Neuter ^b	25	3.23(.584)	
Dissatisfied ^c	48	3.04(.657)	

Reliability Analysis

After analyzing the revising factors regarding health status of nurses, the Cronbach Alpha is 0.86 that is in good in as illustration. So, the internal consistency of these factors is good.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.860	.888	34

6. FINDINGS AND DISCUSSION

Based on the current findings, there is a highly significant and negative relationship ($p=0.000$) between health status and types of unit (Intensive care unit and General ward). Here, the health status of general ward nurses ($M=3.38$) were better than ICU nurses ($M=2.98$). Azzizollah et al. (2015) found that which is conducted in Iran, ICU nurses had more mental disorders than others unit. In this field, there is some reason that nurses who work in intensive care units, they work with more pressure, stress, and deal with death and dying patients continuously compared to other units. In Stanley's study, nurses who worked in intensive units had more mental disorders. The author expresses that nurses who work in intensive care units, due to stress, show significantly higher depression, anxiety, irritability and anger compared to other units (Stanley, 2003). Another study conducted in Bangladesh regarding the impact on the health and well-being of critical care nurses due to stress (Kibria, 2018). This finding is consistent with present study.

Findings from this study, nurses who were worked in day shift showed significantly higher health status compared to those who worked others shift ($p<.010$). It means that generally, nurses health condition were poor who worked in the night shift than day shift. A possible explanation for this situation is that the relative risk of physical and mental problems in night shift workers was higher than day workers which are nearly congruent with Finland study (Puttonen, Harma & Hublin, 2010). This research also highlighted that night shift work can frequently induce sleep disorder which, still underestimated, can represent a risk factor for poor mental and physical health, as indicated by other authors (Waage et al., 2014; Costa et al., 2013). Night work can even be more negative impact for female nurses who also have family responsibilities such as pregnancy and child rearing. Furthermore, this finding is also similar with Jordan study of Abdalkader (2008) where 78% of nurses working in an ICU felt that night shift nurses had heavier workloads than the day shift nurses. Also, the reported that the nurses-to-patient ratio is inadequate during night shift. In the United State study conducted by West, Ahern, Nyrnes and Kwanten (2007) discovered that shift nurses coping with poor sleep quality are more prone to depression.

The current study also revealed that there was a significant relationship between job stress and health status ($p<.000$). If job stress increases significantly, it effects on physical and mental health adversely. Explaining these findings, it can be said that stress affects a large part of the lives of employees in the work and organizational environment, and if it does it last long or the amount of stress is high, the person is gradually tired and the condition continues to decrease the physical and mental energy of the individuals and endangers general health, weakens the ability of the people and, consequently, reduces the nurses' job performance. Majority of nurses had experienced stress due to heavy workload, limited number of nurses, lack of psychological support and development of the law system that is consistent with the Bangladeshi study of Kibria (2018). Another study conducted in Indian hospital Anchan et al. (2011) pointed that, dealing with patient and their families and work as the most frequent stressful events for the nurses. Ramezanli et al. (2015) stated that nurses' occupational environment is filled with various forms of stress, which can have negative consequences not only for their physical and mental health, but their performance and their organizations' productivity. Results of the both studies have been in nearly consistent with the present study.

Moreover, in the present study, there were significant relationship between job satisfaction and health status of nurses with regard to nurses who were job satisfied ($M=3.44$) compared to dissatisfied ($M=3.04$). It can be said that low satisfaction among nurses may affect their not only quality of life but also their job performance, and patients care. This result was nearly congruent with previous study of Morsheda, Zaman and Afroze (2017) in Bangladesh. However, this finding was incongruent to the findings of another study in Bangladesh which reported that the majority of the participants were satisfied with their job (Khatun et al., 2018). Also the results of this research was consistent with the finding of Pillay (2009) in South Africa, who reported that public sector nurses were highly dissatisfied with salaries, workload and resources. Consequently, the job satisfaction among nurses should be a great concern for any health care organizations. Satisfaction with one's job can affect not only motivation at work but also career decisions, relationships with others and personal health. Therefore, it can be practiced to improve nurses' work conditions, reduce workload and develop harmonious relationship with subordinates for increasing nurses' job satisfaction (Myhren et al., 2013).

7. CONCLUSION

The study showed the poor health status of ICU nurses who worked in night shift as well as stressed and dissatisfied with job. Therefore, this finding suggested that improved workplace conditions and promoted health status can be ensured by taking some measureable steps and coping techniques among nurses. A good health status is not only important within their own lives but also for the population who requires their services. In Bangladesh, Health care service system is a challenging sector. Therefore, nurses in Bangladesh facade a problem of the workload because of the large number of nurse scarcity. ICU nurses and general nurses need to provide overloaded services. In respect to overload services and lots of work demands, they generally feel stress in work which

adversely effects on their health. So, it is inevitable to maintain the international standard for the nurse-patient ratio for better patient outcome, job satisfaction as well as reduce stress among nurses.

Though this recent study has few limitations that need to be taken into consideration. Firstly, the convenience sampling which is a non-probability method used to recruit the participants might limit the generalizability of the findings to the total nurses in Bangladesh. Secondly, this research paper was only based on the data from single hospital (BSMMU). Hence, the findings of this study may not be generalized to nurses in other hospital of the country. This paper has examined relationship between job stress, job satisfaction, shift work and health status nurses in Bangladesh as well as it compared and contrasted these factors with the general nurses and ICU nurses.

8. RECOMMENDATIONS

Authority should pay attention to the nurses' psychological construction through establishing psychological counseling platform, setting up "peer support team," and creating a good organization atmosphere. It is also inevitable to maintain the international standard for the nurse-patient ratio for better patient outcome, job satisfaction as well as reduce stress among nurses.

Training programs must be conducted to enhance communication skills and to reduce stress. Therefore, it could be beneficial for improving intuitive communication strategies as well as to promote safety and to improve health in the workplace.

REFERENCES

1. Abdalkader, R., & Hayajneh, F.(2008). Effect of Night Shift on Nurses Working in Intensive Care Units at Jordan University Hospital. *European Journal of Scientific Research*, 23(1),70-86.
2. Al-Homayan, A. M., Shamsudin, F. M., Subramaniam, C., & Islam, R. (2013).The moderating effects of organizational support on the relationship between job stress and nurses' performance in public sector hospitals in Saudi Arabia. *Advances in Environmental Biology*, 2606-2618.
3. American Thoracic Society.(2007). Health Status, Health Perceptions.Retrieved from qol.thoracic.org. (accessed 10th Dec 2018)
4. Anchan, P. S., Jathanna, R., & Marla, A. (2011). Evaluation of Health Insurance and Claim Process at Tertiary Care Hospital, Mangalore. *Journal of Health Management*, 13(1), 97-112.
5. Azzizollah, A., Zaman, A., Khaled, O., & Razieh, J. (2013). The relationship between Job stress and performance among the hospitals nurses. *World of sciences journal*, 2307-3071.
6. Bahalkani, H. A., Kumar, R., Lakho, A. R., Mahar, B., Mazhar, S. B., & Majeed, A. (2011). Job satisfaction in nurses working in tertiary level health care settings of islamabad, Pakistan. *Journal of Ayub Medical College, Abbottabad*, 23(3).
7. Bangladesh nursing & midwifery council. (2013). Retrieved from <http://www.bnmc.gov.bd>. (Accessed 13th October 2018).
8. Blake, H., & Harrison, C. (2013). Health behaviours and attitudes towards being role models. *British Journal of Nursing*, 22(2), 86-94.
9. Chen, N.W., Chang, T. H., Chang, S. P., & Sung, H. Y. (2011). The association of health promoting lifestyle and quality of life among nurses. *Cheng Ching Medical Journal*, (7), 27-37.
10. Costa, G., Accattoli, M. P., Garbarino, S., Magnavita, N., & Roscelli, F. (2013). Sleep disorders and work: guidelines for health surveillance, risk management and prevention. *Med Lav*, 104(4), 251–266.
11. Garcia-Izquierdo, M., & Rios-Risquez, M. I. (2012). The relationship between psychosocial job stress and burnout in emergency departments: An exploratory study. *Nursing Outlook*, 60(5), 322-329.
12. Gurses, A. P., Carayon, P., & Wall, M. (2009). Impact of Performance Obstacles on Intensive Care Nurses' Workload, Perceived Quality and Safety of Care, and Quality of Working Life. *Health Services Research*, 44(2p1), 422-443.
13. Henwood, T., Tuckett, A., & Turner, C. (2012). What makes a healthier nurse, workplace or leisure physical activity? Informed by the Australian and New Zealand e- Cohort Study. *Journal of Clinical Nursing*, 21(11-12), 1746-1754.
14. Helfand, B. K., & Mukamal, K. J. (2013). Healthcare and Lifestyle Practices of Healthcare Workers: Do Healthcare Workers Practice What They Preach? *JAMA Internal Medicine*, 173(3), 242. doi:10.1001/2013.jamainternmed.1039
15. Hosseini, M., Ashk Torab, T., Taghdisi, M. H., & Esmaeili Vardanjani, S. A. (2013). Study on Situational Influences Perceived in Nursing Discipline on Health Promotion: A Qualitative Study. *International Scholarly Research Network Nursing*, 2013, 1-9. doi:10.1155/2013/218034
16. Hsu, C.H., Kung, C.C., Chao, C.L., Chang, H.Y., & Yang, D.Y.(2013). The correlation between nursing staff's burnout and self-rated health at long-term care Facilities. *Cheng Ching Medical Journal*, (9), 48-57.
17. Human Resources Reports, 2017. Generation of reports using DNS PMIS software.

- dgnm.gov.bd/cmsfiles/files/files/Final%20HR%20report%20of%20July%202017.Pdf. (accessed 15th June 2019).
18. International Labor Organization. (2016). Workplace stress – A collective challenge. Retrived from http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_466547. (accessed 10th Dec 2018).
 19. Ioannou, P., Katsikavali, V., Galanis, P., Velonakis, E., Papadatou, D., & Sourtzi, P. (2015). Impact of Job Satisfaction on Greek Nurses' Health-Related Quality of Life. *Safety and Health at Work*, 6(4), 324-328. doi:10.1016/j.shaw.2015.07.010
 20. Jennings, B. (2008). *Work Stress and Burnout Among Nurses: Role of the Work Environment and Working Conditions - Patient Safety and Quality* - NCBI Bookshelf.
 21. Jui, J. S. (2016). *Health Status and Mental Condition Of Nurses In Bangladesh* (Doctoral dissertation, East West University).
 22. Khatun, R., Akter, N., Muhammad, F., & Chowdhury, A. B. (2018). Job satisfaction among nurse's in public and private sector in Dhaka City of Bangladesh: a comparative study. *International Journal Of Community Medicine And Public Health*, 5(6), 2177.
 23. Kibria, M. G. (2018). Prevalence of Stress and Coping Mechanism Among Staff Nurses of Intensive Care Unit in a Selected Hospital. *International Journal of Neurosurgery*, 2(1), 8-12.
 24. Kontodimopoulos, N., Pappa, E., Nikas, D., & Tountas, Y. (2007). Validity of SF-12 scores in a Greek general population. *Health and Quality of Life Outcomes* 5(55).
 25. Lin, P., Chen, C., Pan, S., Pan, C., Chen, C., Chen, Y., ... Wu, M. (2011). Atypical work schedules are associated with poor sleep quality and mental health in Taiwan female nurses. *International Archives of Occupational and Environmental Health*, 85(8), 877- 884. doi:10.1007/s00420-011-0730-8
 26. Lou, J.-H., Yu, H.-Y., Hsu, H.-Y., & Dai, H.-D. (2007). A Study of Role Stress, Organizational Commitment and Intention to Quit Among Male Nurses in Southern Taiwan: *Journal of Nursing Research*, 15(1), 43–53.
 27. MacKusick, C. I., & Minick, P. (2010). Why are nurses leaving? Findings from an initial qualitative study on nursing attrition. *Medsurg Nursing*, 19(6), 335-340.
 28. Mark, G., & Smith, A. P. (2012). Effects of occupational stress, job characteristics, coping, and attributional style on the mental health and job satisfaction of university employees. *Anxiety, Stress & Coping*, 25(1), 63-78. doi:10.1080/10615806.2010.548088
 29. Mbaisi, E. M., Ng'ang'a, Z., Wanzala, P., & Omolo, J. (2013). Prevalence and factors associated with percutaneous injuries and splash exposures among health-care workers in a provincial hospital, Kenya, 2010. *Pan African Medical Journal*, 14.
 30. Moreira, D. de S., Magnago, R. F., Sakae, T. M., & Magajewski, F. R. L. (2009). Prevalence of burnout syndrome in nursing staff in a large hospital in south of Brazil. *Cadernos de saude publica / Ministerio da Saude, Fundacao Oswaldo Cruz, Escola Nacional de Saude Publica*, 25(7), 1559–1568.
 31. Morikawa, Y., Miura, K., Sasaki, S., Yoshita, K., Yoneyama, S., Sakurai, M., ... Nakagawa, H. (2008). Evaluation of the Effects of Shift Work on Nutrient Intake: A Cross-sectional Study. *Journal of Occupational Health*, 50(3), 270-278.
 32. Morsheda, H. U., Zaman, M. N., & Afroze, N. (2017). Assessment of job satisfaction among the senior staff nurses working at Sadar Hospital, Naogaon, Bangladesh. *Asian Journal of Medical and Biological Research*, 2(4), 611-615.
 33. Mosadeghrad, A.M. (2013). Occupational Stress and Turnover Intention: Implications for Nursing Management. *Int J Health Policy Manag*, (1), 169 -76.
 34. Myhren, H., Ekeberg, o., & Stokland, O. (2013). Job Satisfaction and Burnout among Intensive Care Unit Nurses and Physicians. *Critical Care Research and Practice*, 2013, 1-6.
 35. Nahm, E., Warren, J., Zhu, S., An, M., & Brown, J. (2012). Nurses' self-care behaviors related to weight and stress. *Nursing Outlook*, 60(5), e23-e31.
 36. Oyama, Y., Yonekura, Y., & Fukahori, H. (2015). Nurse health related quality of life: associations with patient and ward characteristics in Japanese general acute care wards. *Journal of Nursing Management* 23(6),775-783.
 37. Oyama, Y. & Fukahori, H. (2015). A literature review of factors related to hospital nurses' health-related quality of life. *Journal of Nursing Management* 23(5), 661- 673.
 38. Pillay, R. (2009). Work satisfaction of professional nurses in South Africa: a comparative analysis of the public and private sectors. *Human Resources for Health*, 7(1).
 39. Preto, V.A. & Pedrao, L.J. (2009). Stress among nurses who work at the Intensive Care Unit. 43(4), 838-45.
 40. Puttonen, S., Harma, M., & Hublin, C. (2010). Shift work and cardiovascular disease – pathways from circadian stress to morbidity. *Scandinavian Journal of Work, Environment & Health*, 36(2), 96-108.
 41. Raghad, A., & Ferial, H. (2008). Effect of Night Shift on Nurses Working In Intensive Care Units at Jordan. *European Journal of Scientific Research*, (23)1, 70-86.
 42. Ramezanli, S., Kashkaki, A. R., Talebizadeh, M., & Jahromi, M. K. (2015). A Study of the Coping Strategies Used by Nurses Working in the Intensive Care Units of Hospitals Affiliated to Jahrom University of Medical Sciences. *International Journal of Current Microbiology and Applied Sciences*, 4(4), 157-163.

43. Rozario, M., Adhikary, H., Gazi, H., & Begum, D. (2019). Nurses' roles in patient care in tertiary level hospitals in Bangladesh. *Bangladesh Medical Research Council Bulletin*, 44(3), 138-144.
44. Salih, S. Z., Abajobir, A. A. (2014). Work-Related stress and associated factors among nurses working in public hospitals of Adis Ababa, Ethiopia: A cross-sectional study. *Workplace Health and Safety*, 62, 326-32.
45. Sarafis, P., Rousaki, E., Tsounis, A., Malliarou, M., Lahana, L., Bamidis, P., ... Papastavrou, E. (2016). The impact of occupational stress on nurses' caring behaviors and their health related quality of life. *BMC Nursing*, 15(1).
46. Stanley, N. (2003). Working on the interface: identifying professional responses to families with mental health and child-care needs. *Health and Social Care in the Community*, 11(3), 208-218.
47. Swapnil, B., Harshali, R., & Snehal, C. (2016). Prevalence of Low Mental Health Among Nurses in Medical Intensive Care Units. *International Journal of Contemporary Medical Research*, 3(8), 2454-7379.
48. TAI, S., LIN, P., CHEN, Y., HUNG, H., PAN, C., PAN, S., ... WU, M. (2014). Effects of Marital Status and Shift Work on Family Function among Registered Nurses. *Industrial Health*, 52(4), 296-303.
49. Torquati, L., Pavey, T., Kolbe-Alexander, T., & Leveritt, M. (2016). Promoting Diet and Physical in Nurses. *American Journal of Health Promotion*, 31(1), 19-27.
50. Waage, S., Pallesen, S., Moen, B. E., Mageroy, N., Flo, E., Di Milia, L., Bjorvatn, B. (2014). Predictors of shift work disorder among nurses: a longitudinal study. *Sleep Med*, 15(12), 1449-1455.
51. Ware, J. E., & Sherbourne, C. D. (1992). The MOS 36-Item Short-Form Health Survey (SF36). *Medical Care*, 30(6), 473-483.
52. West, S.H., Ahern, M., Byrnes, M., & Kwanten, L. (2007). New graduate nurses adaptation to shift work: Can we help? *Collegian*, 14(1), 23-30.
53. World Health Organization. (2014). Mental health: a state of well-being. Retrieved from http://www.who.int/features/factfiles/mental_health/en/. (accessed 07th Oct 2018)
54. Wu, S. Y., Li, H. Y., Tian, J., Zhu, W., Li, J., & Wang, X. R. (2011). Health-related quality of life and its main related factors among nurses in China. *Industrial Health*, 49, 158-165.
- Yazdi-Moghadam, H., Estaji, Z., Haydari, A. (2009). Quality of life of nurses in Sabzevar hospitals. *Journal of Sabzevar of Sabzevar University of Medical Sciences*, 16(1), 50-6.
56. ZAPKA, J. M., LEMON, S. C., MAGNER, R. P., & HALE, J. (2009). Lifestyle behaviours and weight among hospital-based nurses. *Journal of Nursing Management*, 17(7), 853-860. doi:10.1111/j.1365-2834.2008.00923.x