

Occupational Health Hazards among Nurses at Quena University Hospital

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Abstract: There are virtually endless occupational hazards for nurses in the workplace, regardless of their place of employment, which may be categorized into physical hazards, social hazards and psychological hazards.

Aim of the study: The study aimed to analyze occupational health hazards among nurses at Quena University Hospital and develop occupational hazard handbook to minimize hazard among nurses.

Design: The descriptive, design utilized in the current study. Sample: 124 nurses were included and working in Quena hospital.

The data collection tools: Data collected through using two tools. The first includes the socio-demographic characteristics of studied nurses .

The second tool, work-related symptoms scale (WRSS).

Results: Study results have shown that the most common type of hazards among nurses was physical hazards followed by psychological and social hazards. The study proved a highly statistically significant relation between psychological and physical hazards/ between social hazards, physical hazards and psychological hazards.

Conclusion and recommendation: The majority of the nurses at Quena University Hospital exposure to a wide range of occupational hazards on their job; that influence their health, the most occupational hazard that influence nurses was physical hazards followed by psychological and social hazards with mean and standard deviation (40.20 ± 8.37 , 36.19 ± 8.45 and 31.36 ± 7.64) respectively. There were highly positive correlation between psychological hazards and physical hazards, between social hazards and physical hazards and psychological hazards. In addition, the finding of present study illustrated that there was no significance difference between age or years of experience and three types of hazards., so they need to provide continued administrative support and develop appropriate strategies to investigate work processes and changing working conditions, which may be addressed through the continuous education of nurses.

Keywords: Occupational, Health, Hazards, Hospital

I. Introduction

It is widely acknowledged that nurses are a crucial component of the healthcare system. They are an integral part of clinical services and have primary responsibility for a significant proportion of patient care in most health care settings (Li, & Lambert, 2014 and Ramsay, 2015). Nurses are prone to occupational hazards in the course of their day to day activities in the health care settings (Isara, Ofili, 2012). Given the nature of nursing working environment, responsibilities and duties, nursing is a uniquely hazardous occupation, nurses and health care personnel are on the frontline of numerous occupational hazards and are most vulnerable to occupational health hazards in the work place. In the nursing profession, the types of health hazards encountered are varied. Some have existed since the birth of the nursing industry, but due recognition has only been accorded them recently (Sveinsdottir, Biering, & Ramel, 2009 and Salehi & Garner 2015). Other health hazards are new, mostly a consequence of the rapid advancement in the health care field in recent times. For convenience, occupational health hazards among nurses may be categorized into three categories, namely, physical hazards, Psychological hazards and social hazards. The order of presentation of the various hazards in the ensuing paragraphs does not reflect their relative importance (Hussain, Ram, and Galinde, 2012 and Lunn, 2015).

Physical hazards, is defined as bodily pain and biological disturbances such as; sleep disturbances, leg pain, back pain, body pain, circulatory disturbances, arm pain, shifts in appetite, digestive disturbances. auditory disturbances, visual disturbances and respiratory disturbances (Ferreira and Mendes 2007 and Senthil A, Anandh B, Jayachandran, et al., 2105).

Psychological hazards, is defined as negative self-perception, negative outlook on life in general, and shifts in mood such as; irritation with everything, loss of self-confidence, feeling of emptiness, loss of self-control, feeling of bitterness, feeling of defeat, crying for no apparent reason, willingness to give everything up, long-lasting feeling of despair, negative image of oneself and difficulties to concentrate **and Social hazards**, is

defined as a feeling of isolation and difficulties in family relationships, such as; family relation difficulties, affective relation difficulties, insensitivity towards others, social life difficulties, find it difficult to make friends, social isolation, difficulty in making decisions regarding personal life, overall disinterest towards others and uncontrolled aggressiveness (*Ferreira and Mendes 2007, Ijzelenberg & Burdorf 2014 and Eljedi, 2015*).

Notwithstanding the essential nature of the work carried out by nursing staff in hospital environments, various social and historical aspects are also involved, such as insufficient social recognition as illustrated by the undervalued and invisible nature of this position in relation to other healthcare professional. (*and Karahan , Kav, Abbasoglu & Dogan , 2009 and Marziale & Carvalho, 2010*).

Significance of the study

Through researchers experience at hospitals they found many nurses exposes to several occupational health hazard and there is no researches done in Quena University Hospitals so, the researchers will conduct this study. In addition nurses, have been selected to be the focus of attention in this study because they constitute the largest category of health care workers in most countries and they have a critical role in the health care delivery system. They generally serve as the primary interface with patients. It would be fair to state that the health care delivery system would cease to function in the absence of nurses.

Research hypothesis:

HO1: there are significant differences between experience and not experience nurses..

HO2: there is a significant differences between socio-demographic data and occupational health hazards among nurses in Quena University Hospital.

Aims of the study: This study aims to analyze the occupational health hazards among nursing staff at Quena University Hospital and develop occupational hazard handbook to eliminate or minimize hazard among nurses.

II. Subjects and Method

Setting: The study was conducted at Quena University Hospital in medical, surgical, orthopedics, pediatrics, ICU, chest and Obs/Gyne units.

Subjects: The total number of nurses included in the study was 124 nurses, representing total coverage for all responded nurses in the study setting who are currently assigned and provide care for patients.

Data collection tools:

The collection of data was achieved by using two tools, **the first tool** include socio-demographic characteristics of the studied nurses such as (Age, sex, years of experience and qualification, job title and marital status). **The second tool**, Work-Related Symptom Scale (WRSS), which was developed by *Ferreira and Mendes (2007)*, this tool aims to evaluate the presence of occupational health hazards among nurses,

Scoring system:

WRSS is a five-point Likert scale which attributes a value of 1 to a totally absent symptom, and a value of 5 to a highly present symptom.

Pilot study: A pilot study was applied on a sample of 10 % of nurses in Quena University Hospital to test the applicability and reliability and the clarity of WRSS as well as to estimate the time needed to answer it. It also helped to test the feasibility and suitability of the study settings. Data obtained from the pilot were analyzed and no modifications were done.

Validity and reliability of the study

The questionnaire was revised and validated by panel of 5 experts in academic field; they agreed and no comments. Internal consistency estimate was using Cronbach's alpha. The initial findings with average 0.92 which is strongly reliable.

Administration design:

To carry out the study at the selected settings an official permission was obtained from the Quena University Hospital administrator, as well as from the director of nursing through a formal letter from the faculty of nursing at Quena University. This was carried out at the time of observation process. Confidentiality of the obtained information was ensured after explanation of its purpose.

Ethical Aspects Related to the Study.

- This study was approved by the Nursing Department at Faculty of Nursing Assiut University, Egypt.
- This study was approved by the Research Ethics Committee of the Faculty of Nursing Assiut University, Egypt.
- An official permission will be obtained to collect necessary data from director of all selecting setting.
- Oral consent of the nurses was obtained prior to the administration of the questionnaire. The nurses were informed about the purpose of the study, and that they had the right to refuse to participate. Also the voluntary nature of participation was stressed as well as confidentiality. Furthermore, the nurses were told that they can refrain from answering any questions and they can terminate at any time. Anonymity of the nurses was maintained at all times.

Statistical design: The collected data were entered and analyzed using the SPSS (Statistical Package for the Social Sciences version 19.0), and the level of significance was set at 0.05. Demographic and baseline variables were analyzed using frequency, percentage, deviation, and bar chart and histogram.

III. Result**Table (1)** Socio-demographic characteristics of studied nurses (n= 124).

	No. (n= 124)	%
Age: (years)		
< 25	55	44.3
25 - < 30	40	32.3
≥ 30	29	23.4
Mean ± SD (Range)	26.09 ± 4.34 (19.0 – 39.0)	
Marital status:		
Single	59	47.6
Married	61	49.2
Divorced	3	2.4
Widow	1	0.8
Units		
Medical	22	17.7
Surgical	24	19.5
orthopedics,	15	12.1
pediatrics,	18	14.5
Obs/Gyne	23	18.5
ICU	13	10.5
Chest	9	7.2
Years of experience: (years)		
< 1	31	25.0
1 - < 5	42	33.9
5 - < 10	32	25.8
≥ 10	19	15.3
Mean ± SD (Range)	2.38 ± 1.15 (1.0 – 5.0)	

Table (1) displays the socio-demographic characteristics of studied nurses. The data in this table reveals that the study nurses were 124, about (44.3%) of them had their age less than 25 years, about (49.2%) of them were married, working in medical, surgical, orthopedics, pediatrics, Obs/Gyne, ICU, and chest units. . It was noticed that about (33.9%) of them had one to less than 5 years of experience in nursing with a mean of 2.38 ± 1.15

Table (2): Mean and standard deviation for three types of hazards among studied nurses

	Mean ± SD	Range
Physical hazards	40.20 ± 8.37	14.0 – 60.0
Psychological hazards	36.19 ± 8.45	11.0 – 55.0
Social hazards	31.36 ± 7.64	9.0 – 45.0

Table (2) describes mean and standard deviation for three types of hazards. The data in this table demonstrate that the high mean score psychological hazard (36.19 ± 8.45). followed by Psychological hazards (40.20 ± 8.37) and . Social hazards (31.36 ± 7.64) respectively.

Table (3): Distribution three types of hazards among studied nurses (n= 124)

Physical hazard	Highly Absent		Absent		Nearly Present		Present		Highly Present	
	No.	%	No.	%	No.	%	No.	%	No.	%
1. Sleep disturbances	4	3.2	10	8.1	48	38.7	21	16.9	41	33.1
2. Leg pain	4	3.2	11	8.9	35	28.2	25	20.2	49	39.5
3. Back pain	8	6.5	11	8.9	36	29.0	36	29.0	33	26.6
4. Body pain	5	4.0	15	12.1	33	26.6	40	32.3	31	25.0
5. Circulatory disturbances	12	9.7	28	22.6	34	27.4	27	21.8	23	18.5
6. Arm pain	8	6.5	26	21.0	34	27.4	32	25.8	24	19.4
7. Shifts in appetite	6	4.8	19	15.3	29	23.4	43	34.7	27	21.8
8. Digestive disturbances	4	3.2	28	22.6	34	27.4	30	24.2	28	22.6
9. Auditory disturbances	17	13.7	46	37.1	31	25.0	14	11.3	16	12.9
10. Visual disturbances	14	11.3	37	29.8	31	25.0	18	14.5	24	19.4
11. Respiratory disturbances	9	7.3	31	25.0	39	31.5	22	17.7	23	18.5
Psychological hazards										
1. Sadness	9	7.3	31	25.0	39	31.5	22	17.7	23	18.5
2. Irritation with everything	9	7.3	15	12.1	28	22.6	36	29.0	36	29.0
3. Loss of self-confidence	9	7.3	11	8.9	46	37.1	24	19.4	34	27.4
4. Feeling of emptiness	20	16.1	35	28.2	32	25.8	23	18.5	14	11.3
5. Loss of self-control	21	16.9	34	27.4	25	20.2	25	20.2	19	15.3
6. Feeling of bitterness	9	7.3	25	20.2	40	32.3	30	24.2	20	16.1
7. Feeling of defeat	11	8.9	26	21.0	30	24.2	23	18.5	34	27.4
8. Crying for no apparent reason	17	13.7	25	20.2	32	25.8	20	16.1	30	24.2
9. Willingness to give everything up	20	16.1	23	18.5	34	27.4	31	25.0	16	12.9
10. Long-lasting feeling of despair	4	3.2	11	8.9	24	19.4	39	31.5	46	37.1
11. Negative image of oneself	8	6.5	9	7.3	54	43.5	28	22.6	25	20.2
Social hazards										
1. Family relation difficulties	8	6.5	11	8.9	33	26.6	33	26.6	39	31.5
2. Affective relation difficulties	7	5.6	12	9.7	31	25.0	29	23.4	45	36.3
3. Insensitivity towards others	13	10.5	33	26.6	32	25.8	25	20.2	21	16.9
4. Social life difficulties	7	5.6	13	10.5	28	22.6	31	25.0	45	36.3
5. Find it difficult to make friends	12	9.7	20	16.1	34	27.4	29	23.4	29	23.4
6. Social isolation	12	9.7	16	12.9	26	21.0	31	25.0	39	31.5
7. Difficulty in making decisions regarding personal life	3	2.4	15	12.1	25	20.2	34	27.4	47	37.9
8. Overall disinterest towards others	17	13.7	22	17.7	40	32.3	24	19.4	21	16.9
9. Uncontrolled aggressiveness	12	9.7	16	12.9	46	37.1	27	21.8	23	18.5

Table (3) shows that three types of hazards among studied nurses. The data in this table reveals that about (39.5 %) of studied nurses highly suffer from leg pain, about (37.1%) of studied nurses suffer from Long-lasting feeling of despair and about (37.9%) suffer from difficulty in making decisions regarding personal life

Table (4): Correlations among types of hazards

		Physical Hazards	Psychological Hazards	Social Hazards
Physical hazards	r-value			
	P-value			
Psychological hazards	r-value	0.689		
	P-value	0.000*		
Social hazards	r-value	0.492	0.587	
	P-value	0.000*	0.000*	

Table (4): Reveals the correlations between three types of hazards. The data in this table illustrate that there is positive correlation between psychological hazards and physical hazards, between social hazards and physical Hazards ($r = 0.689$ and $r = 0.492$) respectively. In addition to there is highly significance differences between psychological and physical hazards with ($P= 0.000^*$), also there is highly significance differences between social hazards, physical hazards and psychological hazards with P-value (0.000^*).

Table (5): Correlation between age and three types of hazards

	Age (years)			P-value
	< 25 (n= 55)	25 - < 30 (n= 40)	□ 30 (n= 29)	
Physical hazards				0.175
Mean ± SD	41.65 ± 8.24	38.43 ± 8.87	39.90 ± 7.65	
Range	22.0 - 60.0	14.0 - 60.0	26.0 - 59.0	
Psychological hazards				0.311
Mean ± SD	37.00 ± 8.83	34.50 ± 8.23	36.97 ± 7.92	

Range	18.0 - 55.0	11.0 - 52.0	20.0 - 53.0	0.568
Social hazards				
Mean \pm SD	31.84 \pm 7.32	30.30 \pm 7.45	31.93 \pm 8.57	
Range	13.0 - 45.0	9.0 - 43.0	9.0 - 43.0	

Table (5) shows the correlation between age and three types of hazards. The data in this table reveals. The data in this table reveals that physical hazards and psychological hazards occur more among nurses who had their age from < 25 with Mean \pm SD (**41.65 \pm 8.24**), (**37.00 \pm 8.83**) while **social hazards** occur more among nurses who had their age $\square 30$ with Mean \pm SD (**31.93 \pm 8.57**).

Figure (1): Correlation between Years of experience and three types of hazards among studied nurses

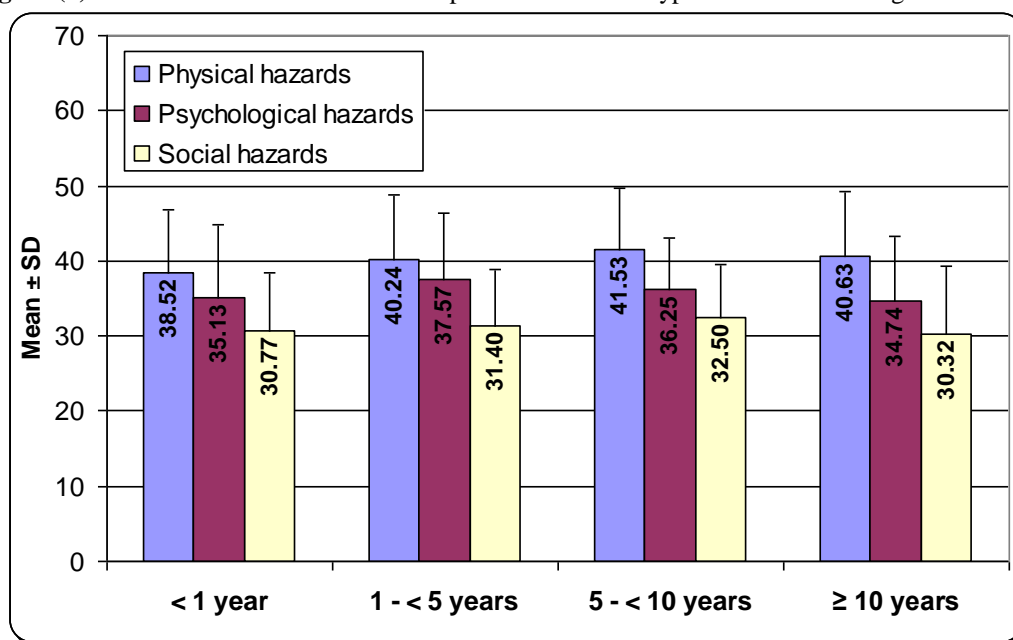


Figure (1) shows the correlation between years of experience and three types of hazards. It reveals that physical hazards more occur among nurses who had years of experience $5 - < 10$ with Mean \pm SD (41.53 ± 8.11), Psychological hazards occur more among nurses who had years of experience $1 - < 5$ with Mean \pm SD (37.57 ± 8.75) and social hazards more occur among nurses who had their years of experience $5 - < 10$ with Mean \pm SD (32.50 ± 7.07). there is no significance difference between age and three types of hazards. there is no significance difference between age and three types of hazards.

IV. Discussion

Since nurses work in high-hazard environment, they exposed to various occupational health hazards which has detrimental effects both on their mental and physical health, productivity and efficacy at work. Also nurses confront potential exposure to infectious diseases, toxic substances, back injuries, and radiation. They also are subject to hazards such as stress, shift work, and violence in the workplace. These typically fall under the broad categories of chemical, biological, physical, social and psychosocial hazards (*Johansson 2013 & Tan, 2015*). Therefore, this study was constructed as descriptive study in an attempt to analyze occupational health hazards among Nursing Staff at Quena University Hospital and develop occupational hazard handbook to minimize hazard among nurses.

The findings of the present study indicated that nurse at Quena University Hospital more expose to Physical hazards followed by psychological and social hazards, this due the nature of nurses job is to care for the sick and injured that require them to moving most of time during shifts, They are often expected to sacrifice their own well-being for the sake of their patients. These findings agree with *Shimizu, Couto, Hamann, et al. (2010)*. who found that the levels of physical hazards for nurses working at ICUs were critical.

In relation to the Physical hazard, it was noticed from the present study that the most frequent manifestation was sleep disturbances, due to rotation shifts which lead to disrupted sleep habit among nurses, this finding agree with *Rothmann, Colf, & Rothmann, (2010)* who reported that people working rotating shifts had decreased sleep duration and rapid eye movement period time because of shift system.

The present study reveals that Leg pain was mostly present among nurses this, due to the amount of physical effort put into patient care, which has not been reduced with the use of technology, nurses standing

most of the time during their work and over workload due to defect in nursing staff. These findings consistent with *Huber, (2010) and Al Hawajreh, (2011)* who emphasizes that nursing is generally perceived as a stressful and demanding profession. It is both physically and psychologically challenging. There is substantial evidence that nursing is a stressful occupation, which can lead to disruptions in both psychological and physical health and can impair professional practice.

In addition, the finding of the present study demonstrated that most of studied nurses suffer from back pain, this findings in line with *Andersen, et., al, (2011)* who emphasized Health care workers show a higher prevalence of low back pain (LBP) than many other occupational groups.

As regards to psychological hazards, it was found a that long-lasting feeling of despair the most manifestation among studied nurses followed by Irritation with everything, Loss of self-confidence and feeling of defeat, this finding in contrast with *(Shimizu, Couto, Hamann, et al. 2010)* who find satisfactory level with regard to negative feelings (loss of self-confidence, feeling of defeat, and long-lasting feeling of despair. In addition this finding in line with *Tan, (2015)* who find that the emotional stress which is inherent in the job of nursing appears to affect the mental health of nurses.

In relation to social hazards, the result of present study illustrate that the most manifestation among studied nurses difficulty in making decisions regarding personal life followed by social life difficulties and affective relation difficulties, this disagree with *(Shimizu, Couto, Hamann, et al., (2010) and The International Council of Nurses, (2011)* who reported that there was a slight social hazards among nurses,

The present study results showed that there is highly positive correlation between psychological hazards and physical hazards, this findings in line with *Welker -Hood, (2006)* who emphasize that job stress is a harmful response physically and emotionally when the employee's skills, resources, and needs could not fulfill the requirement of the job. Moreover *Verhaeghe, Vlerick, DeBacker, et al. (2008)* stated that High level of stress at work is a major threatening factor to both physical and psychological health of individuals while, in contrast with *(Greenslade and Paddock, 2007)* who assert taht moderate levels of job stress is a motivator and improves a worker's participation in his or her job. Mpreover the finding of present study illustrate that there is highly positive correlation between Social hazards and Physical hazards and Psychological hazards, These finding agree with *Vahey, Aiken, Sloane, Sochalski, Busse, & Clarke, (2004)* whose find that nurses work in high-stress environment, which has detrimental effects both on their social relation, mental and physical health, productivity and efficacy at work, absenteeism, as well as on patients' outcomes such as increased mortality and patient dissatisfaction .

In addition the finding of present study reveals that there is no significance difference between age, years of experience and three types of hazards, These finding confirmed with *Shimizu, et al., (2010)* who concluded that there is no significant difference between physical, psychological, and social hazards between the beginning and end of the careers of ICU nurses and nursing technicians, demonstrating that there is no cumulative effect, since fatigue is produced by the work itself. A plausible explanation may be the adaptation of workers to the existing working conditions

V. Conclusion and Recommendations

Conclusion

Based on the results of the present study, it can be concluded that:

- The majority of the nurses at Quena University Hospital exposure to a wide range of occupational hazards on their job; that influence their health, the most occupational hazard that influence nurses was physical hazards followed by psychological and social hazards with mean and standard deviation 40.20 ± 8.37 , 36.19 ± 8.45 and 31.36 ± 7.64 respectively.
- The present study results showed that there was a highly positive correlation between psychological hazards and physical hazards, between social hazards and physical hazards and psychological hazards.
- In addition ,the finding of present study illustrated that there were no significance differences between age and three types of hazards.
- Moreover, the finding of the study reveald that there were no significance differences between years of experience and three types of hazards.

Recommendations

Based on the findings of the present study, the following recommendations are proposed:

1-Quena University Hospital should identify factors that contribute to sources of occupational hazards and develop appropriate strategies to reduce the impact of occupational hazards such as workload (that is, providing more staff to adequately cover unit might be more appropriate and may benefit staff to reduce physical hazards) and providing clear and specific job description, flexible work schedules, fair treatment and regular meeting between supervisors and their staff nurses to discuss any occupational hazards and solve their problem.

2-Policies that reduce stress from shift work should be developed. These could include reducing the number of hours of the night shift, increasing the rest time between shifts, providing adequate meal times, and providing a fair distribution of weekend and holiday work.

3-Nurses must be receiving information and attending training program about the types and influence of hazards in work place and this should be take into consideration in any program addressing occupational health and safety issues.

4-Psychological counseling and therapy should be easily accessible and available for troubled staff members.

5- The management should make effort to encourage and supervise the use of personal protective equipment by the nurses.

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