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Impact of occupational hazards on Minia psychiatric hospital members and their families

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Abstract

Background: Health workers in psychiatric hospitals often are exposed to poor and unfriendly working environments, with multiple work-related adverse health conditions, risks, and hazards associated with workplace physical, emotional, and psychological illnesses. The study aimed to assess the impact of occupational hazards on Minia psychiatric hospital members and their families. A descriptive research design was applied at Minia Psychiatric Hospital in Minia City, Minia Governorate, Egypt. A convenient sample of healthcare members was included (Physicians (n=30), Nursing Staff (n=50), Employees (n=13), hospital workers (n=7), and their families total no= 100) during the work time of data collection. Two tools were used to collect data: part I: Personal characteristics, part II: medical and mental history, Part III: the level of occupational hazards on the healthcare team and their families and Tool II: Impact of occupational hazards among the health care members and their families.

Results: more than three-quarters of the hospital members had low physical occupational hazards, and more than one-quarter had low psychological occupational hazards. Also, nearly one-quarter had moderate physical occupational hazards, more than one-third had moderate psychological risks, and more than one-third had high psychological risks.

Conclusion: Occupational Hazards has impacted on one-third of the studied sample had high home occupational hazards as lack of social support and self from others, followed by more than one-fifth had high physical hazards as feel constant fatigue and tiredness, sleep disorders, poor concentration, poor memory, poor appetite, and the minority had a high mental effect as stress all the time due to occupational hazards.

Recommendations: Establish a continuous training program for hospital workers on ways to protect themselves from the dangers of the negative professional influences of the hospital and emphasis the implementation and application of regulations for the protection of mental health hospital workers, including occupational safety and healthy.

Keywords: Family, hospital members, occupational hazards, psychiatric

Introduction

The health of staff members is significantly affected by their working environment. Negative effects may result from an unchecked hostile workplace. The term "occupational health hazard" refers to an unfavorable working environment. The term "occupational health hazards" is used to describe the risks that workers face in the workplace ^[1].

Medical professionals face numerous threats and hazards while serving patients in need worldwide. Regarding OHS, the health care industry, particularly hospital workplaces, presents several unique hazards ^[2].

The current healthcare workers face unique dangers on the job compared to workers in other sectors. Needless injury, backache, latex allergy, violence, and stress are just some of the many dangers faced by medical professionals ^[3].

Dust, chemicals, physical agents, radiation, biological agents, and other factors are the common categories used to classify workers' various types of dangers on the job. The unique dangers, risks, negative influences, and unsafe practices common in certain professions can cause occupational accidents and diseases^[4].

According to the International Labor Organization (ILO), roughly a quarter of all deaths are related to an unhealthy workplace environment, and annual deaths in the workplace total 2.34 billion.

In addition, nonfatal illnesses associated with work affect 160 million people ^[5]. Over sixteen million people are employed in toxic and harmful businesses, which include over thirty different occupations, and over two hundred million workers are exposed to various occupational hazards. However, when it came to understanding and putting occupational health and safety into practice, the importance of safety in the workplace was often overlooked ^[6]. Healthcare workers face various biological, physical, ergonomic, chemical, and psychological risks. Twenty-nine different physical hazards, twenty-five different chemical hazards, twenty-four different biological hazards, six different ergonomic hazards, and ten different psycho-social hazards and risks have been reported in hospitals, according to the National Institute for Occupational Safety and Health (NIOSH)^[7].

Current studies mainly focus on the relationship between occupational hazards and occupational diseases. However, psycho-social changes in occupational exposure usually happen before physiological disorders, such as job stress and psychological health (Anxiety disorder and depression) ^[8]. However, as discussed in the Hindawi BioMed Research International 2020, psychological stress can hinder mental function, trigger negative physiological responses, and ultimately lead to emotional swings and mental health issues ^[9]. The primary responsibility of a mental health nurse is to evaluate the mental health requirements of individual patients, families, groups, and communities. This could involve the development of a comprehensive care plan and the evaluation of the effectiveness of said treatment for individuals. The treatment options encompass psychotherapeutic pharmaceutical interventions. approaches, and other pertinent therapeutic modalities ^[10].

Risk assessment and hazard identification are the first steps in managing risks to workers' health. The risk perception of various stakeholders, such as employers, workers, and unions, greatly affects the subsequent treatment of the identified hazards and risks. A country's regulatory system also influences perceptions of risk and danger ^[11].

Significance of the Study

According to the International Labor Organization, occupational diseases and accidents affect millions of healthcare workers yearly. Occupational accidents and work-related mental illnesses are responsible for the deaths of an estimated 2.3 million workers annually, according to the International Labor Organization. There are 337 million workplace accidents and 160 million occupational disease cases yearly ^[12].

According to World Health Organization [13], healthcare workers face a number of risks on the job, including sharps injuries. About 2 million cases of hepatitis B virus (HBV), 900, 000 cases of hepatitis C virus (HCV), and 170,000 cases of HIV are contracted annually among healthcare workers worldwide due to medical sharps injuries. A study conducted in Saudi Arabia [14] found that the nursing profession was hit the hardest during the study's time frame. They are also more susceptible to airborne infections and injuries caused by sharp objects. According to Gaber ^[15] research in Egypt, hospital staff at Zagazig University face a full spectrum of occupational risks, with exposure rates ranging from 78% (for chemical risks) to 97% (for environmental/ergonomic risks). However, Hassan^[16] research on cardiac catheterization units in Cairo University Hospitals found that health staff awareness was highest regarding ergonomics hazards, with biological hazards coming in a distant second. While physical dangers were the least recognized, radiological ones were even less so.

Aim of the study

The current study aimed to assess the Impact of Occupational Hazards on Minia Psychiatric Hospital Members and their Families.

Research questions

- What are the occupational risks among the health team and their families from their work at the Psychiatric Hospital?
- What is the Impact of Occupational Hazards on Minia Psychiatric Hospital Members and their Families?

Subject and Method

Research Design: A descriptive research design was applied to achieve the aim of the current study.

Settings: This study was conducted at Minia Psychiatric Hospital in Minia City, New Minia City, Minia Governorate.

This hospital is located in New Minia City, Minia Governorate. The hospital was built in 2009. Its capacity is 53 beds. It consists of two floors: the first floor. It includes administrative offices and outpatient clinics, including (a psychiatry clinic for the elderly - a psychiatry clinic for children and adolescents - a hotline clinic for addiction treatment-an epilepsy treatment clinic-a dental clinic, which is to serves patients in the internal departments). There is also a drug analysis laboratory. The second floor has five sections: (a section for free men's psychiatry - a section for economic psychiatry for men - a free women's section - a section for addiction treatment - a section for adolescents).

Sampling: The study consisted of a reprehensive sample (30%) of hospital members, including "physician (n=30), nursing staff (n=50)" by using the Isaac and Michael ^[17] formula, which was computed by (N= P * 30/100), as well as all employees (n=13), and hospital workers (n=7) as following:

| Staff | Actual number | 30% |
|---------------|---------------|-----|
| Physician | 100 | 30 |
| nursing staff | 150 | 50 |

Note: all employees (n=13) and hospital workers (n=7)

Tools of data collection

Two tools were used to achieve the aim of this study.

Part I: Personal characteristics: as

Part II: Medical and mental history of the study sample at the Minia Psychiatric Hospital.

Part III: The level of occupational hazards among the health team and their families at the Minia psychiatric hospital. The questionnaire consisted of psychological hazards (15 items) and physical hazards (15 items).

Scoring system

Four-point Likert scale was used as follows: yes =4, beyond recall =3, I'm not interested =2, no =1, The total scoring system for psychological hazards was Low = $\leq 45\%$, Moderate = $45\% - \leq 60\%$, and High = > 60% ^[18]. On the other hand, the total physical hazards scoring system was Low = 30%: $\leq 45\%$, Moderate = 45%: $\leq 60\%$ and High = $60\% \leq 75\%$ ^[19].

Tool II: Impact of occupational hazards among the health

care members and their families from their work at the Minia psychiatric hospital and home. It consists of 26 items with a 3-point Likert scale: yes =3, Sometimes =2, no =1. The scoring system was Low = $\leq 45\%$, Moderate = 45%: $\leq 60\%$ and High = > 60% ^[20].

Pilot study

A pilot study was conducted on 10% of the study sample to ascertain the tools' clarity, comprehensiveness, and applicability and estimate the appropriate time required to fill the tools. No modification was done based on the pilot study, and the pilot study was excluded from the final results.

Data collection procedure

First, preparatory phase: tools of data collection development: A review of the past & current related literature covering; using anew published available books, periodical articles, and magazines. Official permission was obtained from the Faculty Ethical Committee of Research to collect the data. All required sheets of the tools were printed, and data were gathered. The investigator needed six months to collect data. The work started from July 2022 to December 2022; the study needed 50 days to collect the data

Results

from the participant and their family, and the investigator worked two days weekly.

III-Administrative Items

A written approval letter was obtained from the dean of the faculty of Nursing Beni-Suef University to accept the manager of Minia Psychiatric Hospital to practice the study. A written letter was sent to the hospital manager, including the study's aim (protocol, tool), using Arabic language and taking permission.

IV-Statistical Analysis

Data entry and statistical analysis were done using SPSS 25.0 statistical software package. Data were presented using descriptive statistics in frequencies and percentages for qualitative variables and means, standard deviations, and medians for quantitative variables. Cronbach's alpha coefficient was calculated to assess the reliability of the tools through their internal consistency. In order to identify the independent predictors of occupational hazards multiple linear regression analysis was used, and an analysis of variance for the full regression models was done. Statistical significance was considered at a p-value of <0.05.

Table 1: Personal characteristics of the studied Hospital members in Minia Psychiatric Hospital in 2022 (N=100)

| Personal Characteristics | No. | % | | | |
|------------------------------|----------------|------|--|--|--|
| 1. A | ge | | | | |
| • <25 | 19 | 19.0 | | | |
| • 25- | 32 | 32.0 | | | |
| • 35- | 24 | 24.0 | | | |
| • 45+ | 25 | 25.0 | | | |
| 2. Ger | der | | | | |
| Male | 54 | 54.0 | | | |
| Female | 46 | 46.0 | | | |
| 3-Social | status | | | | |
| Married | 50 | 50.0 | | | |
| Unmarried | 50 | 50.0 | | | |
| 4. Educatio | onal level | | | | |
| Read and write | 19 | 19.0 | | | |
| Primary stage | 6 | 6.0 | | | |
| Diploma stage | 28 | 28.0 | | | |
| Institute level | 21 | 21.0 | | | |
| Bachelor & other levels | 26 | 26.0 | | | |
| 5. Experience | ce by year | | | | |
| • <5 | 36 | 36.0 | | | |
| • 5- | 20 | 20.0 | | | |
| • 10- | 16 | 16.0 | | | |
| • 15- | 24 | 24.0 | | | |
| • 20+ | 4 | 4.0 | | | |
| 6. Psychiatric u | nit experience | | | | |
| • <5 | 42 | 42.0 | | | |
| • 5- | 20 | 20.0 | | | |
| • 10- | 8 | 8.0 | | | |
| • 15+ | 30 | 30.0 | | | |
| 7. Internal Courses training | | | | | |
| • Yes | 59 | 59.0 | | | |
| • No | 41 | 41.0 | | | |
| If yes, Courses n | umber (N:59) | | | | |
| • 1:2 | 40 | 67.8 | | | |
| • More than 2 | 19 | 32.2 | | | |

Table (1): Illustrates that one-third (32%) of the studied hospital members were aged from 25 to less than 35 years old, more than half the sample (54%) of them were male, and the others were female. This study found the social status is equal; nearly one-third (28%) of them had a

diploma level, one-third of them (36%) their experience under five years, and more than one-third of them (42%) their experience in psychiatric unite, more than half of them (59%) had internal courses and the mostly (67%) from them had 1:2 internal courses.

Table 2: Medical and mental history of the studied Hospital members in Minia Psychiatric Hospital in 2022 (N=100)

| Medical characteristics | | YES | | NO | | | |
|---|----|------|-----------|-------|--|--|--|
| | | % | No. | % | | | |
| 1- Medical History/(100) member | | | | | | | |
| • Hypertension (HTN) | 41 | 41.0 | 59 | 59.0 | | | |
| Heart disease (HD) | 34 | 34.0 | 66 | 66.0 | | | |
| Renal disease (RD) | 3 | 3.0 | 97 | 97.0 | | | |
| Skeletal D | 18 | 18.0 | 82 | 82.0 | | | |
| • Diabetes mellitus (D.M) | 23 | 23.0 | 77 | 77.0 | | | |
| Ophthalmology | 7 | 7.0 | 93 | 93.0 | | | |
| • No | - | - | 100 | 100 | | | |
| 2-Past mental history | 0 | 0.0 | 100 | 100.0 | | | |
| 3-Current mental disease | | | | | | | |
| As the following (28) | 22 | 22.0 | | | | | |
| Depression | 2 | 2.0 | 72 | 72.0 | | | |
| Anxiety | 3 | 3.0 | - 12 12.0 | | | | |
| Alzheimer | 1 | 1.0 | | | | | |

Table (2): This table revealed that; more than one-third of the studied hospital members had hypertension, while all didn't have past mental disease history. Nearly three quarters (72%) did not have any current mental disease,

while only (28%) had mental disease as depression, anxiety, Alzheimer, or psychiatry (22%, 2%, 3%, and 1%, respectively).



Fig 1: Distribution level of physical and psychological occupational health hazards of the study sample in Minia psychiatric hospital in 2022 (N=100)



Fig 2: Distribution impact of occupational hazards on physical, mental, and home status of Minia psychiatric hospital members and their families in 2022 (N=100)

Figure (2): illustrates that one-third of the studied sample had high home occupational hazards as lack of social support and self from others, followed by more than one fifth had high physical hazards as feel constant fatigue and tiredness, sleep disorders, poor concentration, poor memory, poor appetite, and the minority (8.0%) had a high mental effect as stress all the time due to occupational hazards.

Table 3: Best fitting multiple linear regression model for the occupational hazards' agreement score in Minia psychiatric hospital in 2022.

| | | Unstandard | Unstandardized Coefficients | | t toat | n voluo | 95% Confidence Interval for B | |
|----|-----------------|------------|-----------------------------|--------------|--------|----------------|-------------------------------|-------|
| | | В | Std. Error | Coefficients | t-test | t-test p-value | Lower | Upper |
| 1. | Constant | .109 | .893 | | .122 | .903 | -1.666- | 1.883 |
| 2. | Age | .337 | .088 | .521 | 3.826 | 0.0001** | .162 | .512 |
| 3. | Education Level | .128 | .044 | .262 | 2.899 | 0.005** | .040 | .215 |
| 4. | Income | .395 | .145 | .296 | 2.734 | 0.008 | .108 | .682 |
| 5. | Courses | .246 | .129 | .182 | 1.915 | 0.059 | 009- | .502 |

R-square=0.614

Model ANOVA: F=7.68, *p*<0.001

Variables entered and excluded: current ment, ventilation, social status, gender, rooms, experience, psychiatric experience, overcrowding, physical side-effects, and mental side-effects.

Discussion

Traditionally, professionals working in a hospital are seen as capable of keeping their health without help. Hospitals and other health facilities are also considered safer than other workplaces. As a result, few resources are allocated to the occupational health of these hospital workers. However, the hospital environment presents healthcare employees with various occupational hazards, including exposure to infectious agents, needle sticks and sharp injuries, musculoskeletal disorders (MSD), carcinogenic agents, latex allergies, violence, and stress ^[21].

Concerning hospital member characteristics, the present study revealed that less than one-third of the studied hospital members were aged 25 to under 35. This study agreed with Innocent *et al.* ^[22] in their recent study titled "Examination of common occupational hazards among Healthcare workers in a university Healthcare center in southeastern Nigeria" and mentioned that less than one-quarter of studied health workers in their age group from 20 to < 35 years.

The current study reported that more than half the sample was male, the others were female, and our study found that social status is equal; in the researcher's view, this might be related to their age group. This finding on the same line with Thirunavukkarasu *et al.* ^[23], who conducted a study entitled "Prevalence and risk factors of occupational health hazards among healthcare workers of northern Saudi Arabia" and revealed that less than two-thirds of studied healthcare workers were males and married. Contrariwise, this study disagreed with Amare *et al.* ^[24] in their study entitled "Exposure to occupational health hazards among nursing and midwifery students during clinical practice" and mentioned that less than half of the studied nurses were males, and one-quarter were married.

The present study stated that nearly one-third had a diploma level, and one-third had experience under five years. This study is in agreement with Kundury *et al.* ^[25], who conducted a study entitled "Assessing the awareness of occupational safety and health hazards among nursing staff of a teaching hospital" and stated that less than one-quarter of studied nurses had diploma and one-quarter of them had $p \le 5$ years experiences.

The constant study reported that, mostly, their psychiatric experience. This result was similar ^[26], who carried out a

study entitled "Prevalence of occupational hazards among mental health nurses in federal neuro-psychiatric hospital (Fnph), Calabar" and revealed that less than one-third of studied mental health nurses had less than five years of psychiatric experiences.

The present study revealed that more than half had internal courses, and two-thirds had 1:2 internal courses. This study was similar to Alhassan & Poku^[27], who carried out a study entitled "Experiences of frontline nursing staff on workplace safety and occupational health hazards in two psychiatric hospitals in Ghana" and stated that more than two-thirds of them had training courses and less than half of studied nurses had two courses.

In relation to medical characteristics, the current study reported that all the studied hospital members had a medical history of the disease, while they didn't have past mental disease history. This study, in agreement with AL-Hazim *et al.* ^[28] in their recent study entitled "Knowledge, attitudes, and practices regarding ergonomic hazards among healthcare workers in a Saudi Government hospital," stated that less than half of studied healthcare workers had hypertension, diabetes mellitus, and other medical diseases. Nearly three-quarters of them did not have current mental disease history. This study aligns with Innocent *et al.* ^[22] in their recent "Examination of common occupational hazards among healthcare workers in a university healthcare center in southeastern Nigeria" and mentioned that most studied healthcare workers didn't suffer from mental disorders.

Regarding total occupational hazards. Our study shows that; more than three-quarters of the sample is exposed to low physical risks while less than one-quarter are exposed to moderate levels. Conversely, according to psychology risks, one-third are exposed to high levels, most of which are exposed to moderate levels, while only one-quarter are exposed to low levels.

This result was agreed with Kongtip *et al.* ^[29], who conducted a study entitled "Occupational health hazards, health problems encountered, and personal protective equipment used in healthcare workers in hospitals, Thailand" and reported that the highest percentage of occupational health hazards was physical hazards and more than one-third of them had moderate to mild psychological hazards. Contrariwise, this study, in disagreement with Rai *et al.* ^[30], who carried out a study entitled exposure to occupational hazards among health care workers, reported that more than half of the studied healthcare workers suffered from psychological hazards.

Regarding the impact of occupational hazards on the physical, mental, and home status of Minia psychiatric hospital members and their families, one-third of the studied sample had home occupational hazards, followed by more than one fifth had physical hazards, and the minority (8.0%) had a mental effect due to occupational hazards.

This result was agreed with Izadi^[31], who conducted a study entitled "Occupational health hazards among healthcare workers" and reported that the majority of studied healthcare workers had negative consequences of occupational health hazards on their well-being and health. Also, Kumar & Panigrahi^[32] conducted a study entitled "Occupational health hazards among healthcare personnel working in public health facilities in Bhubaneswar" and stated that more than half of the studied healthcare workers reported that suffering from occupational hazards causes social and psychological side effects.

Conclusions

Based on the results of the present study in Minia Psychiatric Hospital in 2022, we can conclude that Onethird of the hospital staff were 25-35 years old, and more than half were male. Over one-quarter of the females have a diploma, one-third of their experience is under five years, one-third are in psychiatric units, more than half have internal courses, and two-thirds have 1:2 internal courses. Three-quarters of hospital employees had low physical occupational hazards, and one-quarter had low psychological occupational hazards. Nearly one-quarter had moderate physical occupational hazards, over one-third had moderate psychological risks, and over one-third had high psychological risks.

Concerning the impact of occupational hazards on the physical, mental, and home status of Minia psychiatric hospital members and their families, one-third of the sample had high home occupational hazards, such as a lack of social support and self-esteem from others, followed by more than one-fifth with high physical hazards, such as constant fatigue and tiredness, sleep disorders, poor concentration, poor memory, and poor appetite, and the minority (8.0%) with high.

Recommendations

Based on the study results, the following recommendations are suggested:

- 1. Establish a continuous training program for hospital workers on ways to protect themselves from the dangers of the negative professional influences of the hospital.
- 2. Emphasis on the implementation and application of regulations for the protection of mental health hospital workers, including occupational safety and health
- 3. Provide workers with updated pamphlets, posters, and Arabic booklets which contain guidelines and information about how to contact and effective communication with the patient.
- 4. Organizing social celebrations on various occasions to consolidate human relations between patients and workers in psychiatric hospitals and their families.

Conflict of Interest

Not available

Financial Support

Not available

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