EFFECT OF OBESITY ON NURSES PERFORMANCE AND PHYSICAL WELL BEING AT ZAGAZIG UNIVERSITY HOSPITALS

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Abstract

Background: Obesity is abnormal or excessive fat accumulation linked to increased risk of developing a range of life-limiting illnesses, including heart disease, cancer and type 2 diabetes. Physical wellbeing Is the ability to maintain a healthy quality of life that allows us to get the most out of our daily activities without undue fatigue or physical stress**Aim of the study:**To assess the effect of obesity on nurses performance and physical wellbeing at Zagazig University Hospitals.**Research design:**A descriptive design was used. **Setting:**The study was conducted at Zagazig University Hospitals**Subjects:**Purposive sample of 80 nurses working at Zagazig University Hospitals.**Tools of datacollection:**Three tools were used for collecting data include an interviewing questionnaire to collect demographic characteristics of the study nurses, questionnaire to evaluate the effect of obesity on physical wellbeing and oswestry Disability Indexquestionnaire. **Results**:Shows that 55%of the studied nurses had satisfactory knowledge about obesity.82.5% of the studied nursesobesity affects their total practice.77.5% of the studied nurses obesity affects theirtotal physical well-being.47.5% of the studied nurses had moderate disability. Also, 22.5% of the studied nurseshad minimal disability. While, 20% of nurses hadseveredisability and 10% hadcrippling back pain.**Conclusion:**this study can be concluded that more than half of the studied nurses had satisfactory knowledge about obesity, majority of the studied nursesobesity affects their total practice and more than three quarters of the studied nurses obesity affects their total physical well-being.There was significant positive correlation between effect of obesity on nurses' practice and physical well-being and permanent functional disability. **Recommendation:**Educational programs should be held periodically for nurses on obesity and negative effect of it on their work life, Urgent training program is required to support nurses to achieve and maintain a healthy weight, Further study is recommended to assess predisposing factor caused obesity among nurses.

Key words: Obesity, Effect, Performance, Physical Well Being.

Introduction

Obesity refers to the excessive accumulation of fat in the body, which leads to co-morbidities that negatively affect the obese person's health[1].. The body mass index (BMI) is a simple index of weight-for- height that is commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in metres (kg/m^2). A person with a BMI of 25 or more is considered by WHO to be overweight, while obesity is defined as having a BMI of 30 or more[2]**.**

Obesity is acommon ,serious and costly disease, the united states obesity prevalence was 42.4% in 2017-2018,The prevalence increased from 30.5 to 42.4% from 2000 -2018[3] Egypt has the highest percentage of obese adults worldwide. Around 19 million Egyptians, or 35 percent of the adult population, are obese[4]**.**

Some of the co- morbidities related to overweight and obesity include cancers (cancers of breast, endometrial, ovarian, colorectal,esophageal,kidney,pancreatic,prostate),Type2 diabetes, hypertension, stroke,Coronary Artery Disease, Congestive Heart Failure, asthma, chronic back pain, osteoarthritis, pulmonary embolism, gallbladder disease, and also an increased risk of disability. All this leads to more than three million deaths worldwide annually**.** [5]

Some obese and overweight people endure discomfort, disability & pain**.** These problems arise because of the excess body weight which contributes to joint pain, knee and back pain and other problems associated with obesity [6]**.**An In addition, some people living with obesity experience mobility problems, while others have been reported to show decreased physical endurance[7]**.**

Obese females for example were found to be less likely to complete school, had a 20% less chance of getting married, earned less and had more household poverty in comparison to females that were not overweight[8]. Depression is more common in obesity, particularly in women and younger people, while weight loss is associated with improved mood. Adolescents who are obese or overweight, or perceive themselves as such, are more likely to engage in risk behaviour than those of normal weight. This can involve substance abuse, risky sexual behaviour or violence[9].

The effects of obesity on workplace productivity, namely indirect costs, including absenteeism, presenteeism, disability, early retirement and premature mortality-related costs; and sedentary behaviour (sitting) at work[10].Obesity among nursess may hinder effective patient care through performance impairment that impact on patient safety. Nurses who are obese may experience difficulty in carrying out certain physical aspects of patient care activities requiring access to tight spaces, range of motion and mobility and may struggle to perform nursing tasks such as cardiopulmo-nary resuscitation, moving and handling and attending to patients' personal care needs due to limited space or increase the likelihood of injury, potentially leading to sickness absence or work force exit. [11]

Obesity is a risk factor for functional decline and the risk high with increase in body mass index. Nurses with higher waist circumference and body mass demonstrate difficulty in bending, kneeling, stooping, lifting and carrying. Problems with executing these basic physical tasks creates limitations in maintaining strength and mobility, as well as in performing basic activities of daily living[12].Physical wellbeing Is the ability to maintain a healthy quality of life that allows us to get the most out of our daily activities without undue fatigue or physical stress. The American Nurses Association (ANA) has raised awareness about nurse wellness. According to the ANA, a healthy nurse is defined as "one who actively focuses on creating and maintaining a balance and synergy of physical, intellectual, emotional, spiritual, personal, and professional wellbeing (ANA)." [13]

Obesity has a strong association with the occurrence of chronic medical problems, impairment of health-related quality of life, and increasing the health care and medication spending, the related health care costs for obesity-related problems, for both individuals and health care systems, are substantial[14]

Obesity is associated with reduced postural control and stability that could hinder the ability to adapt to changes in terrain or grades during walking. One of the reasons for this is the abnormal distribution of body fat in the abdominal area. This leads to a forward anterior posterior (AP) center of pressure; meaning that they carry their weight toward the front of their feet, and AP instability during static and dynamic balance[15].

Obesity in nursing is associated with various functional limitations connected with poor health, limited mobility, flexibility, low endurance, and increased numbers of lost-time injuries in health care, while performing strenuous tasks such as lifting and assisting adult patients[16].

Overweight, obesity and their impacts in different dimensions of health must be considered as one of the most important public health priority. There is a need for comprehensive strategies for prevention and control of this epidemic. [17]

Significance of the study:

Obesity is linked to increased risk of developing a range of life-limiting illnesses including heart disease, cancer, type 2 diabetes, stroke, joint problem, sleep apnea and has been associated with reduced quality of life.

The nurse is at risk every day to work related illness or injury while providing patient care as nursing care may contain strenuous physical effort such as patient transferring in and out of bed during daily care .for the obese nurses it results pain ,disability, low back injuries, impaired physical function, hinder effective nursing performance and costly for the hospital because the injured nurse is not able to provide the required level of nursing care and because treatment is costly[18].

Aim of The Study

The aimof the study was :

To assess the effect of obesity on nurses performance and physical wellbeing at Zagazig University Hospitals.

Research Questions:

- What is the effect of obesity on nurses' knowledge and practice?
- What is the effect of obesity on physical wellbeing for nurses?

Subjects and Methods:

Research design:

Descriptive design was used in carrying out this studystudy and to answer the research questions .

Setting:

The study was conducted at three hospitals (general surgery hospital –chest and cardio hospital and pediatric hospitals) at Zagazig University Hospitals.

Subjects:

Purposive sampleofall available obesenurses who providecare to the patients with total number of 80nurses working at(general surgery hospital(30) –chest and cardio hospital(20) and pediatric hospital(30) affiliated to Zagazig university hospitals.

Tool of data collection

In order to fulfill the objectives of the study three tools were used for collecting data of the present study:

Tool 1: It was designed by the researcher after reviewing of related literature and opinion of expertise for content validity to assess nurses' knowledge regarding obesity. This questionnaire includes (71) questions, divided into four parts as follow Demographic characteristics of the nurses, Physical assessment and medical history,Interviewing questionnaire to assess nurses' knowledge regarding obesity and Questionnaire to assess the effect of obesity on nurses practice**.**

Scoring systemfor the knowledge items, the correct answer was scored 1 and the incorrect zero. For each area of knowledge, the scores of the items were summed- up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into percent scores. Knowledge was considered satisfactory if the percent score was ≥70% and unsatisfactory if the percent scores was <70% based on statistical analysis.

Tool II:

This tool was aimed to assess the effect of obesity on physical wellbeing which adapted and modified by the researcher to suite aim of the study. It was translated into Arabic language and included three items Total items were 80 included in the list (always,frequent,sometimes and never). These items were classified intoten parts include**:** Psychological health, Physical health, Spiritually side, Social side, Theeconomic aspect, Work, Daily life, Sexuality, Sleeping and Feeding.

Scoring system:

Affected given one not affected given zero. The calculated converted into percent scores ≥70% was affected while <70% not affected based on statistical analysis.

Tool III:Oswestry Disability Index Questionnaire:(Matthew Yates, Neil Shastri –Hurst, 2017).

The ODI included 60 statements listed into ten items, each items contain six mcq statementsThe ODI has ten items including(pain intensity, personal care, lifting, walking, sitting, standing, sleeping, sex, social, and travel).

The Scoring system:

- 0% –20%: Minimal disability
- 21%–40%: Moderate Disability.
- 41%–60%: Severe Disability.
- 61%–80%: Crippling back pain.
- 81%–100%: These patients are either bed-bound or have an exaggeration of their symptoms .

Content Validity and Reliability:

Validity of the tool:

The tools were revised by a panel of five experts from nursing staff which included three professor and two assistant professors of medical surgical nursing department, faculty of nursing, Zagazig University who revised the tool's content for clarity.Reliability was measured by Alpha Cronbach for knowledge questionnaire was 0.799 Reliability of practice was 0.802 Reliability of the effect of obesity on physical wellbeing was 0.874.

Field work:

Field work of this study was executed in five months from January, 2020 to May 2020. During this stage all the data were collected from the study subjects.

The researcher was available 3 days per week; one day for each hospital conducted in this study at the morning and afternoon shifts. The time used for finishing the questionnaire about 30 minutes for each nurse.

Pilot Study:

Pilot study was conducted on eight staff nurses. They represented 10% of total subjects they were excluded from the main study sample. A pilot study was done for testing the clarity and applicability of the tools.

Administration and Ethical Consideration:

At the interview, each subject was informed about the purpose, benefits of the study, and they were informed that their participation is voluntary and they have right to withdraw from the study at any time without given any reason. In addition, confidentiality, and anonymity of the subjects were assured through coding of all data. The

researcher assured that the data collected will be confidential and would be used only to improve their knowledge and practice for the purpose of the study.

Statistical analysis:

Data collected from the studied sample was revised, coded and entered using Personal Computer(PC).Computerized data entry and Statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies, percentages. Chi-square test (X2) was used for comparisons between qualitative variables. Spearman correlation measures the strength and direction of association between two ranked variables.Significance of the results:Highly significant at p-value <0.001,Statistically significant was considered at p-value <0.05, Non-significant at p-value>0.05.

Results:

Table(1): Frequency and PercentageDistribution of Studied Nurses According to theirDemographic Characteristics (n=80)showed that half of the studied nurses (50%) aged more than 40 years with mean ±SD 38.75±7.74 year. Highest percent of studied nurses (92.8% and 92.5%) were female and married respectively.. Also, two thirds of studied nurses (62.5%) had ≥ 3 children. Also, 82.5% of the studied nurses didn't attend training courses about obesity.

Table (2): Frequency and Percentage Distribution of Studied Nurses According to their Physical Evaluation and Health History Showed that two third of the studied nurses (65%) weighed from 85 to 95 kg, their height ranged between 160 to 170 cm (53.8%) and their BMI ranged between 30 to 35. Also, majority of the studied nurses (70%& 88.5%) didn't practice sports and didn't check periodically respectively.

Table (3): showed that more than half ofstudied nurses (55%) had satisfactory total knowledge regardingobesity compared to 45% had unsatisfactory totalknowledge with mean ± SD 27.65 ± 7.3.

Table (4): showed that majority of the studiednurses (82.5%) suffered from obesity which affects their total practice. While, 17.5% of the studied nurseswere not affected

Table(5): Distribution of The Studied Nurses According to Effect of Obesity on Their Total Physical Well-Being showed that most of the studied nurses (90.0%) suffered from obesity which affected daily life activities. Obesity affected economic, sleeping in about three quarters of the studied nurses (75.0%,73.7% respectively).

Finally, 77.5% of the studied nurses suffered from obesity which affected theirtotal physical well-being. While, 22.5% of studied nurses were not affected.

Table(6):Distribution of The Studied Nurses According to Total Permanent Functional Disability showed that less than half of studied nurses (47.5%) had moderate disability. Also, 22.5% of themhad minimal disability. While, 20% and 10% of nurses hadseveredisability andcrippling back pain,respectively.

Table (7) Correlation Between the Nurses' knowledge, Effect of Obesity on Their Practice,physical Well-Being and Permanent Functional Disabilityshowed that there was significant positive correlation between effect of obesity on nurses' practice on one hand, and effect of obesity on nurses' physical well-being (p=0.015) and permanent functional disability (p=0.004) on the other hand. Additionally, there was highly significant (p=0.0001) positive correlation between effect of obesity on nurses' physical well-being and permanent functional disability.

Discussion:

The socio-demographic characteristics for studied nurses, of the current study revealed that half of the studied nurses their age ≥ 40 years with mean ± SD 38.75±7.74 year. As regard to gender and marital status, the most of studied nurses were female and married. These results explained as Nursing has traditionally been a female-dominated industry, but the percentage of male nurses has increased with the time. These results in cohort with the study conducted by [19]about Assessment of Nurse's Health Promotion of Their Lifestyles at Al-Kut City Hospitals, Iraq, with sample size 300 nurses who found that more than one third of studied nurses were male and only less than one fifth of them had age more than 40 years

Regarding physical evaluation and health history of studied nurses, the current results revealed thatabout two thirds of the studied nurses their weight ranged between 85-<95 kg with mean ± SD 93.22±9.38 kg. Also, more than half of them their height ranged between 160- <170 cm with mean ± SD 163.76±96.26 cm. Meanwhile, less than half of them their BMI ranged between 30-<35 with mean ± SD 35.27±3.12. These results inconsistent with the study conducted by[20] titled in Association of trajectory of body mass index with knee pain risk in Japanese middle-aged in a prospective cohort study: the Japan Nurses with sample size 7434, who reported that mean BMI at the

baseline survey was 21.8 (2.8). The percentage of those who were overweight based on BMI at the baseline survey was less than one fifth, while majority had a normal BMI.

These results similar with the study performed by [21]titled in Associations between working environment and weight control efforts among health workers with obesity in Korea, with sample size 484 health worker, who revealed that less than two thirds of subjects reported that they face high burden related their work due to overweight. Also, agreement with the study by titl[22]ed in Actions of nurses toward obesity in primary health care units, with sample size 19 nurses with qualitative study and mentioned that obesity had negative reflection on daily nursing practice.

These results consistent with the study conducted by [23]about Nurses' Well-Being, Health-Promoting Lifestyle and Work Environment Satisfaction Correlation: A Psychometric Study for Development of Nursing Health and Job Satisfaction Model and Scale, with sample size 672 nurses, who demonstrated that obesity cause huge burden on nurses daily living as exercise and running.

According to work aspect, the current results revealed that half and more than half of the studied nurses sometimes feel bored and unwilling to work and sometimes find it difficult to do work, respectively. While, more than one third of nurses frequently need more time to perform the tasks and frequently absent from work when they tired. Also, the majority of studied nurses suffered from problem related work aspect. These results supported with the study conducted by[24] titled in Changes in job strain and subsequent weight gain: a longitudinal study, based on the Danish Nurse, at Denmark with sample size 6188 nurses, who revealed that decrease in job influence and a sustained burden of busyness were most strongly related to subsequent weight gain.

Regarding nurses' demographic characteristics and effect of obesity on their total physical well-being, the current results detected that there were highly statistically significant relation between total effect of obesity on nurses' physical well-being and their gender and attendance of training courses at (P= < 0.01). While, there were statistically significant relation with their age and marital status at (p= < 0.05). On the other hand, there were no statistically significant relation with academic qualification, residence and working unit at (p= > 0.05). These results similar with the study done by [25]about the effects of an aquatic exercise program with obesity management education on physical function of obese women in community, at Korea, who reported that increasing age and female subject suffered high impaired at physical function that male and younger subjects.

Regarding to nurses' demographic characteristics and their total permanent functional disability, the present study reported that there were highly statistically significant relation between total permanent functional disability of the studied nurses and their attendance of training courses at (P= < 0.01). Also, there were statistically significant relation with their age, gender and academic qualification at (p= < 0.05). On the other hand, there were no statistically significant relation with marital status, residence and working unit at (p= > 0.05). These results regular with the study performed by [26]Obesity and pain: A systematic review, who reported that subjects' gender and dietary habits had negative effect on their function.

Regarding the correlation between the Nurses' knowledge, effect of obesity on their practice, physical well-being and permanent functional disability, the present study revealed that there was highly significant positive correlation between total effect of obesity on nurses' physical well-being and their permanent functional disability. Also, there was significant positive correlation between total effect of obesity on nurses' practice and their total effect of obesity on nurses' physical well-being. These results agreement with the study performed by[27] titled in Physical Activity in Healthcare Workers with Low Back Pain:

Conclusion:

The present study,concluded that more than half of the studied nurses had satisfactoryknowledge aboutobesity, majority of the studied nursesobesity affects their total practice, more than three quarters of the studied nursesobesity affects their total physical well-being. There was significant positive correlation between effect of obesity on nurses' practice, physical well-being and permanent functional disability.

Recommendation**:**

Based on the study findings

Educational programs should be held periodically for nurses on obesity and negative effect of it on their work life**,** Urgent training program is required to support nurses to achieve and maintain a healthy weight**,**Tailored intervention for nurses working life and health life style**,**The study should be replicated on large sample and different hospitals setting in order to generalize the results.

Table(1)Frequency and Percentage Distribution of Studied Nurses According to Their Demographic Characteristics (n=80).

Demographic Characteristics	No	%
Age:		
20-<30	10	12.5
30-<40	30	37.5
≥ 40	40	50.0
Range	23-55	
Mean±SD	38.75±7.74	
Median	39.50	
Gender:		
Male	6	7.5
Female	74	92.5
Academic qualification		
Bachelor of Nursing	26	32.5
Diploma of Technical Institute	20	25.0
Secondary Diploma in Nursing	30	37.5
Nursing diploma	4	5.0
Marital status:		
Single	2	2.5
Married	74	92.5
Widow	2	2.5
Divorced	2	2.5
Number of children		
<3	30	37.5
≥ 3	50	62.5
Residence		
Urban	28	35.0
Rural	52	65.0
Working unit		
Medical	28	35.0
Surgical	35	43.0
Intensive Care	17	22.0
Number of working hours per day		
< 6	10	12.5
6-8	68	85.0
> 8	2	2.5
Number of working hours per week		
< 40	22	27.5
40-60	56	70.0
> 60	2	2.5
Attended training courses about obesity:		
Yes	14	17.5
No	66	82.5

Table 2: Frequency and Percentage Distribution of Studied Nurses According to Their Physical Evaluation and Health History (n=80)

Items Physical Evaluation and Health History	No	%
Weight (kg):		
75-<85	6	7.5
85-<95	52	65.0
≥ 95	22	27.5
Range	75-125	
Mean±SD	93.22±9.38	
Median	92	
Height (cm):		
150-<160	17	21.2
160-<170	43	53.8
≥ 170	20	25.0
Range	150-180	
Mean±SD	163.76±96.26	
Median	163	
Body Mass Index		
30-<35	38	47.5
35-<40	32	40.0
≥ 40	10	12.5
Range	30-43	
Mean±SD	35.27±3.12	
Median	35	
Practice sports		
Yes	24	30.0
No	56	70.0
Kind of sports (n=24)		
Walk regularly for half an hour daily	26	32.5
Running	2	2.5
Reflection	52	65.0
Exercise regularly		
Yes	12	15.0
No	68	85.0
Check periodically		
Yes	10	12.5
No	70	88.5
Take slimming drugs or herbs		
Yes	24	30.0
No	56	70.0
Follow any diet to lose weight		
Yes	34	42.5
No	46	57.5
Family history from obesity		
Yes	32	40.0
No	48	60.0

Family history from chronic diseases		
Yes	48	60.0
No	32	40.0

Table 3: Distribution of Total Knowledge Regarding Obesity among Studied Nurses (n=80).

Total knowledge of The Studied Nurses	No	%
Satisfactory ≥70	44	55.0
Unsatisfactory <70	36	45.0
Mean ± S.D	27.65 ± 7.3	
Range	18-37	

Table 4: Distribution of Nurses Regarding Effect of Obesity on Their Total Practice (n=80).

Total effect of obesity on nurses' practice	No	%
Affected ≥60	66	82.5
Not affected <60	14	17.5
Mean ± S.D	26.55 ±6.3	
Range	10-32	

Table 5: Distribution of the Studied Nurses According to Effect of Obesity on Their Total Physical Well-Being (n=80)

Items	Affected		Not affected	
	No	**%**	**No**	**%**
Psychological	66	82.5	14	17.5
Physical	68	85.0	12	15.0
Spiritual	42	52.5	38	47.5
Social	65	81.2	15	18.8
Economic	60	75.0	20	25.0
Work	70	87.5	10	12.5
Daily life activities	72	90.0	8	10.0
Sexuality	64	80.0	16	20.0
Sleeping	59	73.7	21	26.3
Food	48	60.0	32	40.0
Total	**62**	**77.5**	**18**	**22.5**

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Table 6: Distribution of the Studied Nurses According to Total Permanent Functional Disability (n=80).

Total Permanent Functional Disability	No	%
Minimal disability	18	22.5
Moderate Disability	38	47.5
Severe Disability	16	20.0
Crippling back pain	8	10.0
Bed-bound or exaggerating symptoms	0	0.0

Table (7): Correlation Between the Nurses' knowledge, Effect of Obesity on Their Practice,physical Well-Being and Permanent Functional Disability.

Items	Nurses' knowledge	Effect of obesity on Nurses' practice	Effect of Obesity on Nurses' Physical well-being
Nurses' knowledge			
Effect of obesity on Nurses' practice	r =.005 p = .966		
Effect of obesity on Nurses' physical well-being	r = -.037 P = .747	r = .367 p = .015*	
Permanent functional disability	r = -.045 P = .690	r = .475 P = .004**	r = .595 P = .000**

 (*) Statistically significant at p<0.05--(**) highly significant at p<0.01.

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