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Original Article

Overweight, Obesity and its Associated Factors among Nurses at Tertiary Care Hospitals Karachi

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ABSTRACT

Overweight and obesity have been identified as considerable health risks worldwide. **Objective:** To identify the prevalence of overweight, and obesity and its association with demographic variables among nurses. **Methods:** A cross-sectional analytical study was conducted at Dr. Ruth KM Pfau Civil Hospital and Dow University Hospital Karachi over a period of six months of periods from March to August 2019. A total of 299 subjects of both genders were approached by the non-probability convenient sampling method. Chi-square test was applied to identify the associated factors. P-value ≤ 0.05 counted as significant. **Results:** Out of 299, half of the study nurses 149 (49.8%) were male. Among 299 participants, 75 (25.1%) of them were overweight or obese. While 13 (4.3%) were underweight and 211 (70.6%) were normal weight. Mean age, working experience, and BMI were found 29.52 ± 8.568, 7.35 ± 6.177, and 23.30 ± 3.148 respectively of the study nurses. Gender (p-value=0.003), educational status (p-value=0.002), and nature of the job (p-value=0.003) of the participants were found statistically significant with BMI. **Conclusions:** Present study concluded that the majority of study participants had normal BMI and a small number of study subjects were found obese. However, a quarter of nurses are recognized as overweight. Moreover, a significant association was established between BMI with gender, the nature of the job, and the education of nurses.

INTRODUCTION

Overweight and obesity is a relatively common health-related problem across the globe and it is persistently raising as a pandemic [1]. It has become a major risk factor for many non-communicable diseases such as cancer, hypertension, diabetes, musculoskeletal disorders, and cardiac diseases [2]. It is established that nearly 40% of the global adult population is overweight or obese [3]. It is disclosed that nurses primarily female nurses who work in night shift tend to be overweight or obese [4]. In Kenya, the rate of overweight and obesity among healthcare workers was 35% and 28.4% [5]. It is established that overeating, stress, anxiety, and inactivity can lead to obesity [6]. Obesity has been recognized as an emerging health issue in both developing and developed countries [7]. World Health

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Organization (WHO) predicted that non-communicable diseases will cause the greatest number of deaths in Southeast Asia and the Western Pacific Region by the year 2020 [8]. The prevalence of obesity was 40.3% reported in India [9]. In Bangladesh, 39% of participants were found overweight [10]. Pakistan is the 9th most obese nation in the world. Moreover, it is documented that around 26% of women in Pakistan suffer from the trouble of obesity while just 19% of the men are obese [11]. For a nurse, it is very necessary to maintain the quality and quantity of healthy life to achieve life's main goal [12]. Therefore, this research was performed to define the prevalence of obesity and its associated factors amongst nurses at Tertiary Care Hospitals, in Karachi.

METHODS

This Cross-sectional analytical study was carried out at Dr. Ruth KM Pfau Civil Hospital Karachi (CHK) and Dow University Hospital (DUH) Karachi. The study was accomplished in six months of periods from March to August 2019. OpenEpi version 3.0 was used to calculate the sample size with the proportion formula. It was calculated by taking 26.4% of the prevalence of overweight and obesity [13], a 95% level of significance, and a 5% margin of error. The calculated sample was 299 subjects of both genders. Subjects were approached by a non-probability convenience sampling method. Both gender male and female nurses, who were registered by Pakistan Nursing Council (PNC) and had one-year working experience were included in the study. Study protocols were approved by the Institutional Review Board of Dow University of Health Sciences, Karachi. Data were entered and analysed by using SPSS version 21.0. Quantitative variables like age, working experience, and BMI were presented with mean ± standard deviation. While, data of qualitative variables such as gender, marital status, religion, educational status, hospital, nature of the job, and shift duty were presented in frequency and percentages. Moreover, the Chi-square test was applied to determine an association between designation, gender, age, working experience, educational status, hospital, religion, marital status, duty shift, and nature of the job with the outcome variable. P-value ≤ 0.05 was considered as significant. Data Collection Tool: Adapted, validated tool was used for data collection. It was adapted from the previously published study conducted by Aryee *et al.*, in Ghana [13]. The written permission of using the questionnaire was granted.

RESULTS

Table 1 disclosed the socio-demographic characteristics of the study participants. In this study, there were 299 nurses, and the majority 272 (91%) of the study participants were staff nurses. Whereas, only 27 (9%) were either head nurses or team leaders of the duty shift. Approximately half of the study nurses 149 (49.8%) were male. Almost half 154 (51.5%) were unmarried. Three fourth 227 (75.9%) of the study subjects were Muslims. Two-thirds of 193 (64.9%) of the participants had an education or diploma in nursing. Out of 299 participants, 75 (25.1%) of them were overweight or obese. While 13 (4.3%) were underweight, and 211 (70.6%), were normal weight. Mean age, working experience, and BMI were found 29.52 ± 8.568, 7.35 ± 6.177, and 23.30 ± 3.148 respectively of the study nurses.

Table 1: Demographic information of the study participants

Demographic factor	N (%)
Designation	
Staff Nurse	272(91)
Head Nurse	21(7)
Other	6(2)
Gender	
Male	149(49.8)
Female	150(50.2)
Marital Status	
Single	154(51.5)
Married	144(48.2)
Divorced	1(0.3)
Religion	
Muslim	227(75.9)
Christian	67(22.4)
Hindu	5(1.7)
Education	
Diploma in Nursing	193(64.5)
BS. Nursing	103(34.4)
MS. Nursing	3(1)
Duty Shift	
Morning	125(41.8)
Evening	108(36.1)
Night	66(22.1)
Hospital	
CHK	165(55.18)
DUH	134(44.82)
Job Nature	
Single	211(70.6)
Double	13(4.3)
Duty with study	75(25.1)
BMI	
Underweight	13(4.3)
Normal	211(70.6)
Overweight	67(22.4)
Obese	8(2.7)
***Age**	29.52±8.568
***Working experience**	7.35±6.177
***BMI**	23.30±3.148
*Presented in form Mean ± SD; SD; Standard deviation	

Figure 1 exhibited the BMI according to gender. The study

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findings unveiled the majority of 114 (38.13%) females had normal BMI while 97 (32.44%) male subjects had normal BMI. Furthermore, 3(1%)males and 10(3.34%)females were found underweight. With respect to overweight, 42 (14.05) and 25(8.36%)were male and female respectively. As for as obesity concern, a rare number of females 1(0.33%) were obese whereas 7(2.34%)males were obese.

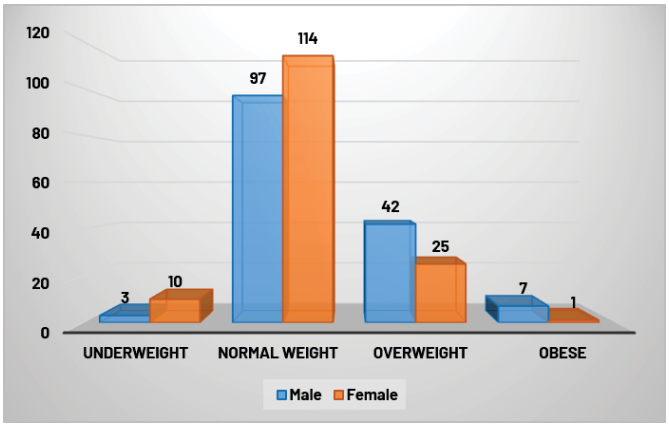

Figure 1: BMI of Study Participant According to Gender

Table 2 revealed the job and lifestyle-related questions from study participants. This table highlighted that the majority of nurses were working 6 days and 36 hours of duty per day. It is also notified that most (69.6%) nurses have time to sit during duty hours. One-third(63.5%)of the study subjects were also involved in some sort of activities like household etc along with duty. While only 77(25.8%) were involved in the exercise. Mostly 122 (40.8%) nurses were using a motorbike as a conveyance for duty, whereas, a few 20 (6.7%) were using the car. A huge number of the participants 254 (84.9%), 263 (88%), and 200 (66.9%) were taking fruits and snacks, always eating breakfast and using supper/dinner respectively.

Table 2: Job and lifestyle characteristics of study participant

Questions	N (%)
How many times do you come to work within a week?	
≤ 5 days	14(4.7)
6 days	268(89.6)
7 days	17(5.70)
Do you normally sit at desk at work?	
Yes	209(69.9)
No	90(30.1)
Average duty hours at work in a week	
<36 hours	4(1.3)
36 hours	236(78.9)
> 36 hours	59(19.7)
Do you work other than scheduled duty hours?	
Yes	80(26.8)
No	219(73.2)
Do you engage in other activities after work, like household, sports etc?	
Yes	190(63.5)
No	109(36.5)
Do you hold any special position at work?	
Yes	67(22.4)
No	232(77.4)
By what means do you come to work?	
By foot	39(13)
By cycle	36(12)
By motorcycle	122(40.8)
By car	20(6.7)
Other	82(27.4)
Do you engage in any form of exercise?	
Yes	77(25.8)
No	222(74.2)
Do you watch TV?	
Yes	126(42.1)
No	173(57.9)
How many times do you eat in a day?	
1	3(1)
2	62(20.8)
3	222(74.2)
4	12(4)
Do you normally take in fruits and snacks?	
Yes	254(84.9)
No	45(15.1)
Do you always take breakfast?	
Yes	263(88)
No	36(12)
Do you always take lunch?	
Yes	274(91.6)
No	25(8.4)
Do you always take supper/dinner?	
Yes	200(66.9)
No	99(33.1)
Do you normally skip meals?	
Yes	114(38.1)
No	185(61.9)

Table 3 showed the association of underweight, normal weight, overweight, and obesity with demographic variables. Gender variable was found statistically significant (p-value=0.003) with BMI. This table exhibits that male nurses are more overweight or obese as compared to female nurses. Moreover, the educational status of the participants was also found significant (p-value=0.002), diploma level nurses were found more obese as compared to a higher level of education. Overweight was also recorded as high in Dow University Hospital as compared to Civil Hospital; this variable is also statistically significant with BMI. Another variable that indicated a significant association with BMI was job nature (p-

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value=0.003). BMI recorded more than 25 in those nurses who were performing single jobs.

Table 3: Association of BMI with demographic variables

Parameter	According to BMI				Chi	p-value
	Underweight	Normal weight	Overweight	Obese		
	N	N	N	N		
Designation						
Staff Nurse	13	192	59	8	3.538	0.739
Head Nurse	0	14	7	0		
Other	0	5	1	0		
Age (year)						
20-30	8	108	30	4	3.102	0.796
31-40	2	44	19	1		
≥41	3	59	18	3		
Gender						
Male	3	97	42	7	13.949	0.003
Female	10	114	25	1		
Marital Status						
Single	8	113	29	3	7.593	0.269
Married	4	98	37	5		
Divorced	0	0	1	0		
Religion						
Muslim	10	157	53	7	8.572	0.199
Christian	3	51	13	0		
Hindu	0	3	1	1		
Education						
Diploma in Nursing	12	140	39	2	20.726	0.199
BS. Nursing	1	70	27	5		
MS. Nursing	0	1	1	1		
Hospital						
CHK	9	126	28	2	10.596	0.014
DUH	4	85	39	6		
Shift						
Morning shift	6	89	27	3	5.412	0.492
Evening shift	7	74	25	2		
Night shift	0	48	15	3		
Job Nature						
Single	8	145	55	3	19.711	0.003
Double	0	6	6	1		
Duty with study	5	60	6	4		
Family member overweight						
Yes	3	62	24	2	3.088	0.798
No	9	141	42	6		
Don't Know	1	8	1	0		

*p-value ≤ 0.05 was considered as significant

DISCUSSION

In the present study, the mean age of study participants was 29.52 ± 8.568 years. The study results are similar to a study performed in Pakistan by Badil et al., reported mean age of the study participant was 27.1 ± 7.412 years [14]. The findings of this study exhibited that more than two-thirds 70.6% of nurses had normal BMI, 4.3% were underweight and 22.4% were overweight which is comparable with the study accomplished in Hong Kong by Wong et al., showed 68% had normal BMI, 11.9% reported underweight and 20.1% were overweight [15]. Moreover, the mean BMI of this study was 23.30 ± 3.148 kg/m2 which is consistent with a study carried out in Korea by Kim et al., revealed a 20.9 ± 2.5 kg/m2 BMI among nurses [16]. In the present study, 2.7% of nurses were obese. On the other hand, the prevalence of obesity was higher compared with nurses in the UK at 25.12% [17], Scotland at 29.4% [18], and South Africa at 51.6% [19]. A very small number of female nurses 1 (0.33%) was found obese in this study. These findings are contradicted by a study conducted in Saudi Arabia that established a large number of female nurses 30.6% were obese [20]. Additionally, the study conducted in Pakistan, showed 13.8% of female nurses were obese [14]. In another study, the author observed 27% of female nurses were obese [21]. Current study findings showed a statistically significant association between BMI with gender (p-value= 0.003). This study's finding is consistent with previous research [22]. In addition, the present study results revealed a significant association between BMI with education (p-value= 0.002) and the nature of the job (p-value =0.003). These study results are comparable with the study conducted in Peru, in which education and the nature of jobs had significant associations [23]. On the other hand, dissimilar results were found in the study conducted in China which unveiled that obesity was significantly associated with female gender, and fast-food intake [24].

CONCLUSIONS

The study concluded the majority of nurses had normal BMI and a small number of study nurses were found obese. However, a quarter of nurses are recognized as overweight. Furthermore, a significant association was established between BMI with gender, the nature of the job, and the education of nurses.

Authors Contribution

Conceptualization: JA
Methodology: R, SA
Formal analysis: FS, YA
Writing-review and editing: JA, B, R, FS, YA, GQ

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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