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ORIGINAL ARTICLE

Eating Behaviour and Its Associations with Overweight among Nurses on Shift Duty in Teaching Hospital

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ABSTRAK

Berat badan berlebihan dan obesiti telah menjadi satu isu global yang dibimbangi. Lebih daripada 1.9 bilion orang dewasa di seluruh dunia menghadapi berat badan berlebihan dan lebih daripada 650 juta yang obes pada tahun 2016. Jururawat Malaysia juga tidak terkecuali daripada masalah berat badan berlebihan. Kajian telah dijalankan untuk mengkaji kelaziman berat badan berlebihan dan hubungan antara tabiat pemakanan dan berat badan berlebihan di antara jururawatan yang kerja shif di Pusat Perubatan Universiti Kebangsaan Malaysia. Sebanyak 280 responden telah menyertai kajian ini dan tabiat pemakanan dikaji menggunakan Tabiat Pemakanan Belanda Versi Melayu. Indeks jisim badan telah dikategorikan mengikut "Clinical Practice Guidelines 2004". Hasil kajian menunjukkan 68.5% daripada jururawat mempunyai berat badan berlebihan (37.1%) atau obes (31.4%). BMI jururawat tidak menunjukkan hubungan dengan data sosio-demografi kecuali umur (r=0.156). Apabila umur meningkat, indeks jisim badan akan meningkat. Manakala, kajian menunjukkan ketiadaan hubungan di antara tabiat pemakanan secara emosi dan secara pengaruh luar tetapi tabiat pemakanan secara kawal menunjukkan hubungan yang ketara dengan indeks jisim badan ($F = 6.056$, $p = 0.003$). Kesimpulannya, tabiat pemakanan secara terkawal paling diamalkan oleh jururawat dengan tujuan untuk mencapai berat badan ideal tetapi usaha tersebut tidak berhasil dan menyebabkan berat badan meningkat. Jururawat yang berat badan berlebihan atau obes akan meninggalkan imej buruk kepada masyarakat serta merendahkan kayakinan masyarakat terhadap jururawat. Selain itu, masalah berat badan berlebihan akan menjejaskan prestasi kerja jururawat serta kualiti penjagaan kepada pesakit. Isu ini perlu ditangani dengan segera. Oleh itu, gaya hidup dan tabiat pemakanan yang sihat di antara jururawat harus digalakkan di hospital.

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Kata kunci: berat badan berlebihan, jururawat, tabiat pemakanan

ABSTRACT

Overweight and obesity have become a global concern and estimated with more than 1.9 billion adults worldwide were overweight and more than 650 million were obese in 2016. Nurses in Malaysia were no exception to overweight and obesity. This research was conducted with the aim to identify the prevalence of overweight among nurses on shift duty in a teaching hospital and to understand the relationship between abnormal eating behavior and body mass index. A total of 280 respondents participated in this research and Dutch Eating Behavior Questionnaire was used. Body Mass Index (BMI) score was categorized according to Clinical Practice Guidelines 2004. Results showed that 68.5% of the nurses were either overweight (37.1%) or obese (31.4%). The nurses' BMI does not showed any association with socio-demographic data except age (r=0.156). As age increases, the nurses' BMI also increase. This research also showed that there was no association between emotional and external eating behavior to BMI. However, there was a statistically significant differences in BMI for restraint eating (F=6.056, p=0.003). In conclusion, restraint eating behavior was the most practiced form of eating behavior in an attempt to achieve the ideal body weight but unfortunately lead to overweight among the nurses. Overweight or obese nurses will have a negative impression to the society and even reduce their confidence towards nurses' health education. Overweight or obesity also ruined the nurses' working performance and quality of care for patients. This issue requires immediate action and interventions to promote healthy lifestyles and eating habits among nurses should be conducted in the hospital.

Keywords: eating behavior, nurse, overweight

INTRODUCTION

Increasing prevalence for overweight or obesity represents a global pandemic as food manufacturer are producing more processed and affordable food, and marketed them more effectively than ever before (Swinburn et al. 2011). The prevalence of obesity in Malaysia was 33.6% which is higher than the world's prevalence of 13.0% in 2014 (World Health Organization 2014). As for nurses, the prevalence of overweight increased as high as 54.5% and 79.1% in United States of America (Zitkus 2011) and South Africa (Goon et al. 2013), respectively. A study conducted by Coomarasamy et al. (2014) in Malaysia among a total of 1086 nurses shows that 50.6% were either pre-obese (33.5%) or obese (17.1%).

Nurses' work is often unpredictable and highly time sensitive which caused

the nurses to alter their eating practices to meet their work demands which resulted in inappropriate dietary intakes, altered nutritional status (Reed 2014) and eating behavior (King et al. 2009) that lead to overweight and obesity (Groesz et al. 2012). Time constraint and urgent tasks pending lead them to buy fast foods which were unhealthy (Phiri et al. 2014) as this alternative was regarded as the most convenient option (Almajwal 2016, Phiri et al. 2014) and unfortunately, lead to overweight.

Studies have showed that poor dietary habit could result in the high percentages of overweight or obesity especially among women (Aryee et al. 2013; Reed et al. 2016). Study conducted by Zapka et al. (2009), concluded that increased consumption of low cost, high fat and energy dense food were directly contributed to the increased prevalence of obesity. Health problems associated with overweight or obesity such as cardiovascular disease, obesity, type II diabetes and dyslipidemia caused an increase sick leave or premature workforce exit that negatively affect the public health role of nurses (Büscher et al. 2009). Another research stated that poor health and lifestyle behavior exhibited by nurses influenced their nursing performance and weaken nurses health-promotion messages (Bjerrum et al. 2012).

Nurses are the forefront of the healthcare industries that provide care for patients and their family members. Nurses often serve as role models and educate the public about their health. However, many nurses neglected to take care of their own health (Nahm et al. 2012). It is important for all the nurses to maintain a healthy figure as a form of encouragement to the public to practice healthy lifestyle especially healthy eating behavior. To the best of our knowledge, there were no studies in Malaysia that have explored the relationship between eating behavior and overweight among nurses on shift duty. The aim of this study was to determine the prevalence of overweight among the nurses and also the association between eating behavior and overweight among nurses on shift duties in Universiti Kebangsaan Malaysia (UKM) Medical Center.

MATERIALS AND METHODS

This study utilized descriptive cross-sectional design and was conducted in the teaching hospital. Sample size was determined using Krejcie and Morgan, (1970) formula. From the formula, the estimated sample size for this study was 280. 10% of subject attrition was included in the sample size and sample collected up to 308 subjects. The total population of this study was 1022. Stratified random sampling used and the nurse population was divided into different strata. Name list was obtained from the ward's head nurse and subjects were randomly selected according to the sample size of the strata. The response rate was 100%.

The instrument used in this research was a pre-tested, self-reported Malay Version Dutch Eating Behavior Questionnaire (DEBQ) (Kavitha et al. 2017). Ethical approval was obtained from Research Ethics Committee (REC)

and permission was granted by Head of Nursing Department and Nursing Manager of the teaching hospital. The project code was FF-2018-104. Pilot study was carried out on 30 participants with Malay Version DEBQ after obtaining the ethical approval. Reliability test was conducted and revealed good Cronbach's alpha with 0.894 (Emotional Eating), 0.851 (External Eating) and 0.901 (Restraint Eating), respectively. Researchers obtained informed consent from the nurses before collecting any data as participation were based on voluntary will of nurses. When nurses consented, information on socio-demographic data and anthropometric indices of weight and height were collected. Finally, Malay DEBQ was administered to the nurses to fill in. The DEBQ consisted of three sections of a total 33 questions. The sections were further divided into section A (emotional eating), section B (external eating) and section C (restraint eating). Emotional eating behavior was explained as the tendency to eat due to emotional trigger such as stress, happiness, anxiety or boredom. External eating was explained as the tendency to eat due to environmental stimulation such as presence or aroma of delicious food. Restraint eating was the refusal to eat the usual amount of food intake or purposeful eating of little amount of food. The height and weight of the nurses were measured to the nearest 0.1 cm and 0.5 kg respectively. Nurses were required to remove their shoes during the anthropometric measurements to obtain more precise data. All instruments were calibrated properly before use and readings were taken twice to ensure accuracy and avoid error. The readings were also recorded immediately. The questionnaire was collected in a closed envelope to ensure confidentiality.

The nurses' eating behavior were assessed using 5 point likert scales in DEBQ with score 1 (never), score 2 (rarely), score 3 (sometimes), score 4 (often), score 5 (very often). The cut-off mean score of likert scale was 1.33 where the highest possible score (5) will minus the low possible score (1) and divided by the number of category (3).

$$\text{Eating behavior} = \frac{\text{Highest possible Score - Lowest Possible Score}}{\text{Number of Category}}$$

$$= \frac{5-1}{3}$$

$$= \frac{4}{3}$$

$$= 1.33$$

The total score of each subscale was calculated by adding up all the items in each of the domain, the mean of the total score was then divided into

Table 1: Eating behavior and mean score

Eating behavior	Mean Score
Low	1.00 - 2.33
Moderate	2.34 - 3.67
High	3.68 - 5.00

Table 2: Asian BMI Index Cut Off

BMI Range	Status
< 18.5	Underweight
18.5 – 22.9	Normal Weight
23.0 – 27.4	Pre-Obese
27.5 – 34.9	Obese I
35.0 – 39.9	Obese II
≥ 40.0	Obese III

3 categories (Dehghani et al. 2015; Sabah 2016). The mean score of eating behavior was shown in Table 1. The anthropometric data of nurses were calculated and categorized using Clinical Practice Guidelines from Ministry of Health Malaysia (2004) was shown in Table 2. Data was analyzed using SPSS software version 23.0 (SPSS, 2015). One way ANOVA was used to determine the significant differences between eating behavior and overweight. Statistical significance was set at $p<0.05$.

RESULTS

Table 3 showed the demographic data of subjects. The mean age was M = 33.62 (SD = 5.49) with 37.1% of them less than 30 years old. Majority of the nurses were married (80.7%) and of Malay ethnicity (97.5%). The prevalence of overweight and obesity among 280 respondents was 68.5% where 37.1% were overweight and 31.4% were obese. The eating behaviours of nurses in the study population were shown in Table 4. The nurses were more likely to

Table 3: Demographic data of nurses

Characteristic	Variables	Frequency (n)	Percentage (%)	Mean (SD)
Age				33.62 (± 5.49)
	≤ 30	104	37.1	
	31 - 37	90	32.1	
	≥ 38	86	30.7	
Race	Malay	273	97.5	
	Indian	2	0.7	
	Others	5	1.8	
Marital status	Single	54	19.3	
	Married	226	80.7	
Anthropometric Measurements				25.77 (± 5.07)
	Underweight	8	2.9	
	Normal weight	80	28.6	
	Pre-Obese	104	37.1	
	Obese 1	71	25.4	
	Obese 2	13	4.6	
	Obese 3	4	1.4	

Table 4: Eating behavior among nurses

Eating behavior	Percentage (%)			Mean (Sd)
	Low	Moderate	High	
Emotional	52.1	44.3	3.6	2.269 (± 0.745)
External	6.8	71.4	21.8	3.188 (± 0.594)
Restraint	20.0	67.1	12.9	2.867 (± 0.682)

experience moderate external eating (71.4%) and moderate restraint eating (67.1%) while less likely to experience emotional eating (52.1%). One way ANOVA revealed a significant different between eating behavior and overweight among nurses. The result was shown in Table 5. However, only restraint eating showed statistical significance difference at the $p<0.05$ level in BMI score, ($F = 6.056$, $p = 0.003$). The relationship between age and body mass index score was investigated using Pearson Product-moment Correlations Coefficient. There was a weak positive correlation between the two variables $r = 0.164$. The p value indicated the relationship between age and BMI score was statistically significant ($p<0.006$). Result showed that as respondents' age increased, their BMI also increased.

DISCUSSION

In this study, the prevalence of overweight was high among the nurses where our findings showed that out of 280 respondents, 68.5% were either overweight (37.1%) or obese (31.4%) with the mean BMI score of 25.77 (Table 2). Our research finding was consistent with a study conducted in Malaysia by Coomarasamy et al. (2014) where 50.6% and 17.1% of the nurses were overweight and obese, respectively. The high prevalence of overweight in our studies may be due to the lack of physical activity, high consumption of carbohydrates and unhealthy eating behavior such as tendency to skip meals and opt for fast foods as reported by Coomarasamy et al. (2014). Gap between knowledge-behavior gaps may also be another cause of overweight or obesity where the nurses may not properly practice the proper preventive measures against obesity (Coomarasamy et al. 2014).

There was a significant positive correlation found between age and BMI. However, the correlation was weak. This result reflected that as the nurses' age increases, their likelihood

Table 5: One way analysis of variance for eating behavior and BMI

Variable	BMI(Kg/M^2)			F	Mean (Sd)
	Low	Moderate	High		
Emotional Eating	25.52 (± 4.8)	25.96 (± 5.36)	27.21 (± 5.27)	0.663	0.516
External Eating	26.52 (± 5.1)	25.71 (± 4.86)	25.76 (± 5.75)	0.224	0.800
Restraint Eating	23.71 (± 5.34)	26.26 (± 4.92)	26.47 (± 5.34)	6.056	0.003*

The significance level of *p≤0.05

of becoming overweight or obese also increase. Studies conducted by Aryee (2013) and Goon et al. (2013) among the nurses population showed similar results to our study. They found that age is a vital predictor of overweight or obesity where pubertal and body fat compositional changes associated with the hormonal influences that come with sexual growth and development (Aryee et al. 2013). Another plausible explanation may come from the consideration that nurses' may tend to acquire an increase in sedentary routine and expend less energy as they assume senior or supervisory position in the service (Aryee et al. 2013). In our study setting, the phenomena may be explained by changes to metabolic rate that gradually decline due to aging (Lazzer et al. 2010; Solomon et al. 2009). Another research showed increasing age may cause the reductions in the organ or tissue mass of an individual that lead to a decline in resting metabolic rate and thus promote changes in body composition favoring increased fat mass and reduced fat-free mass (St-Onge & Gallagher 2010).

Our research findings also showed a significant relationship between restraint eating behavior and overweight or obesity where majority of the participants (67.1%) have moderate restraint eating behavior (*n*=188). Our result concurred with a study conducted among Iran nurses population where they demonstrated high restraint eating behavior among overweight and obese subjects compare to those of normal weight (Akbarzadeh et al. 2017). The high restraint eating behavior may be due to the nurses attempting to lose weight with the aim to achieve the ideal body weight or body shape. The attempt may be successful for a short period. However, on the long run, dietary restraint became difficult to maintain in their daily lives as study conducted by Papies and Hamstra (2010) showed that restraint eaters tend to overeat when exposed to attractive food cues as compare to unrestraint eater (Papies & Hamstra 2010). Research showed that higher concern for dieting were found to be associated with lower perceived self-regulatory success in dieting and more binge eating. Apart from that, higher dietary restraint may be associated with more extreme or unhealthy weight control strategies such as fasting or meal skipping (Meule et al. 2012). These weight control measures contradicted to healthier patterns of weight control and research had shown that these unhealthy behaviors can lead to weight gain after 4 years (Savage et al. 2015).

Our research findings showed no significant relationship between external eating behavior and overweight or obese among nurses on shift duty. A research conducted among non-Saudi female nurse population working in Saudi major hospitals showed that nurses working rotating shift duty were more likely to have abnormal restrained eating behavior and less likely to have abnormal external eating behavior (Almajwal 2016). Study by Braet et al. (2008) showed overweight females scored higher emotional eating while overweight males scored higher in external eating.

Another study by Chan (2016) and Monge-Rojas et al. (2015) showed that males consume large portion of high calories food to meet their metabolic needs in order to maintain their masculinity while females tend to diet and conscious about the amount of their food intake as to maintain characteristics of femininity. Gender could be another possible explanation for the non-significant relationship between external eating behavior and overweight as our studies involved female nurses only. Our research showed that there was no significant relationship between emotional eating and overweight or obese which congruent with another research done among undergraduates population that showed that emotional eating was not associated with increase in consumption of snack (Adriaanse et al. 2011). Snack consumption was not predicted by emotional eating but rather on the habit of the eater and reasoned that emotional eating may not show the tendency to eat under emotional conditions, but rather it reflected the concern about own eating behavior that will lead to weight gain.

There were few limitations in this study. Our study was cross-sectional in nature. Hence, our studies were not able to study the relationship between eating behavior and BMI over a period of time. Apart from that, majority of our respondents were Malays with only a handful of Indians and other minorities. This poor representativeness of the population may affect our result. Longitudinal studies can be used in future studies to further investigate other possible confounding factors that may affect the association between eating behavior and BMI. Longitudinal studies also allow researchers to further understand the relationship between eating behavior and BMI over certain period of time such as changes in the eating behavior of respondents over time. Future studies could be conducted among nurse working at other tertiary hospital in Malaysia as the results maybe used as future reference by fellow academicians.

CONCLUSION

Our studies showed that overweight or pre-obese is prevalent among the nurses and restraint eating behavior was the most practiced form of eating behavior among the nurses as they aim to achieve their ideal body weight or even just to maintain their current body weight. Emotional eating and external eating behavior does not have statistical significance to overweight or obese in this study. This study also showed an association between age and overweight or obesity among the nurses.

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