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Prevalence of Obesity and Daily Lifestyles of the Registered Nurses in Malaysia

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ABSTRACT: The rate of obesity has increased in Malaysia over the years and has become one of the leading causes of morbidity and mortality in the country. Nurses as role models have a professional responsibility to promote healthy lifestyle among the general population. This cross - sectional survey is aimed to determine the prevalence of obesity among female Registered Nurses in Malaysia, as well as to assess their medical and reproductive health statuses, eating patterns, exercise patterns, and stress reduction activities. Results revealed that most of the nurse-respondents were middle-aged, married, with more than 10 year experiences working as staff nurses in public hospitals. The BMI data shows that overweight and obesity is an actual and emerging issue among nurses. Out of the 1086 Registered Nurses, 50.6% were either pre-obese (33.5%) or obese (17.1%). Nurses and other stakeholders should address this problem promptly. There is indication of knowledge-behavior gap among the nurse-respondents' overall lifestyle patterns. Their knowledge in terms of proper dietary choices, rest, and stress reduction activities needs to be reinforced to promote healthier lifestyle. It is recommended that staff health especially the monitoring of weight be included as part of health promotional programs initiative of every organization together with a supportive environment. Attention must also be given to work-related conditions which has an impact on stress.

KEYWORDS: Body mass index, health status, lifestyle, obesity, Registered Nurses.

1 INTRODUCTION

The World Health Organization (WHO) projected that for the year 2020 non-communicable diseases will be the cause of the greatest number of deaths in Southeast Asia and Western Pacific Region[1]. Obesity is one of the contributing factors for non-communicable diseases. In 2008, 1.5 billion adults were found to be overweight and obese. Out of this figure, nearly 300 million were obese women [2].

In Malaysia, 47.9 percent of both sexes were overweight or obese. Approximately 51.2 percent were females [3]. Among the Western Pacific Region countries, the prevalence of overweight and obesity in Malaysia (14%) is nearly triple that of China (5.7%), Japan (5%) and Philippines (6.3%) and double that of Singapore (7.1%) [4]. This alarming increase in obesity rate in Malaysia cannot be ignored.

Nurses have a vital role in health promotion and in educating the public on the maintenance of a healthy lifestyle. Despite the wealth of evidence supporting the positive impact of exercises and proper nutrition on health, the practicing nurses in many countries have been found to be overweight or obese. A study done in Australia, New Zealand and UK found nurses and midwives to have a higher prevalence of overweight and obesity compared to the general population[5].

According to Ogunjimi, Ikorok & Olayinka, (2009) the prevalence of obesity among Nigerian nurses was 62.2%[6]. Miller, Alpert & Cross (2007) also found almost 54% of the American nurses to be overweight and obese[7]. All these data imply that nurses themselves, as part of the population, are at risk of developing non-communicable diseases and are subsequently contributing to the increase in mortality and morbidity rates. If the role of a professional nurse is to educate the public about healthy lifestyles, then nurses themselves must embrace healthy behaviors. They can only be seen as effective role models if they maintain their body weight through good dietary habits and physical exercise.

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Energy imbalance as the consequences of poor lifestyles: physical activities and dietary intakes is an important contributing factors of obesity[8]. Ministry of Health (2010), has proposed overweight and obesity as fifth priority for nutritional research in Malaysia[9]. In addition, there is lack of data about the nurses' state of health and lifestyle in Asia and specifically in Malaysia. This study is to provide the knowledge gap on this controversial but relevant issue. The focus was to assess the body mass index (BMI) of female Malaysian Registered Nurses and to determine their daily lifestyle in terms of eating, exercise, sleep/rest, and stress reduction patterns.The results are expected to promote awareness regarding the health of the nurses and to provide input for policy decisions and programme planning regarding the maintenance of health among nurses and workforce productivity. The findings can also be used as basis for further studies.

2 RESEARCH METHODOLOGY

This study utilized the descriptive, cross-sectional, and survey design. The population is limited to the Malaysian female Registered Nurses who were present at the International Nurses Day Celebration and Seminar held on 12 May 2012 in Shah Alam Convention Centre. This annual event is attended by majority of the nurses in the country. This ensures the representativeness of the sample and generalizability of the data.

The sample size was calculated by Raosoft sample size calculator [10].Based on estimated population 100,000, and anticipated response was 50%. The required sample 1056 was considered appropriate to provide sufficient power (β = 0.9) with a confidence level of 95% and a 3% error margin. An exclusion criterion was also established which included: male nurse, midwives, assistant nurses, and those female RNs with less than 6 months of work experience. Convenience sampling was used in finding the respondents. Research team distributed 1200 questionnaire and a total of 1086 female Registered Nurses (RN) responded.

A researcher-made questionnaire with three parts was employed. The first part is on the BMI of the respondents. Height and weight were taken when the self-administered questionnaire was returned using the weighing scale and the height measurement. BMI was calculated using the equation below: $Weight\ (Kg)/Height\ (m)^2$[11]. The second part covered the demographic data of the respondents. Data comprised of the age, race, religion, marital status, educational background, and employment information. The last part of the questionnaire covered the lifestyle of the respondents which comprised of three aspects: 1) daily eating patterns, 2) physical activity and exercise patterns, and 3) rest, recreation and stress reduction activities. The tool was pilot-tested among faculty members of the School of Nursing in UCSI University to ensure that the questionnaire is valid and reliable. Reliability evaluation revealed Cronbach's coefficient alpha of 0.7.

Ethical approval from the Ethical Committee of the Faculty of Health and Medical Sciences was obtained. Permission for the study to be done during International Nurses Day was obtained from the Malaysia Nurses Association (MNA). Before data collection, the respondents were explained that their participation was voluntary, along with the objectives, procedure, and benefits of the study. Confidentiality and anonymity were assured and maintained throughout the conduct and analysis of the study.

For data analysis, the SPSS software was used. The prevalence of the obesity and overweight among female Registered Nurses in Malaysia, their demographic data, and lifestyle were presented in descriptive statistics.

3 RESULTS AND DISCUSSION

A total of 1086 Registered Nurses participated in this study. Majority (90.4%) of the Registered Nurses were Malays. Their ages ranged between 19 and 63 years (χ-39 years). The most common age group was between 31-60 years (74.4%), followed by less than 30 years group (25.1%). Almost all the Registered Nurses were employed full time (98.8%). They were mainly diploma holders (91.3%) and employed in the public sector (94.6%). Majority (78.4%) are married. Most (74.3%) of the respondents were holding the position as staff nurses. Their years in service ranged between 1 and 44 years with majority (37.4%) in the 11-20years services bracket closely followed by the group with more than 20 years of services (35.8%).

Table 1. Demographic Data of the female Registered Nurses

Demographic Data		Frequency (n = 1086)	Percentage
Age	Young adults (30 and below)	273	25.1
	Middle adults (31 – 60)	808	74.4
	Older adults (above 60)	5	0.5
Race	Malay	982	90.4
	Others (Chinese and Indians)	104	9.6
Religion	Islam	989	91.0
	Others (Buddhism, Hinduism, Christianity)	97	9.0
Marital Status	Single	200	18.4
	Married	852	78.4
	Divorced	18	1.7
	Widowed	16	1.5
Level of Nursing Education	Diploma in Nursing	991	91.3
	Bachelor in Nursing	85	7.8
	Postgraduate (Masters & PhD)	10	0.9
Number of years in service	10 years and below	389	35.8
	11 – 20 years	406	37.4
	21 – 30 years	199	18.3
	31 – 44 years	92	8.5
Type of Employment	Full time	1073	98.8
	Part time	13	1.2
Type of Institution	Public	1027	94.6
	Private	59	5.4

3.1 BODY MASS INDEX (BMI) CLASSIFICATIONS

Recommended BMI cut off points for body weight classification for Malaysian by the Ministry of Health Malaysia [11] was used. Table 2 shows the BMI classifications of Malaysian female Registered Nurses.

Less than half of the respondents studied had a normal BMI. A few (4.7%) were discovered to be underweight. Most (33.55) of the respondents were already in the pre-obese state and 17% are already obese. Some (0.6%0 were in the Class III obese category. The mean BMI of the nurses was 25.36 (SD ±4.7).

The findings indicate that 50.6% of the nurses are at moderate or high risk for comorbidities. These results confirmed the data in the literature from other countries [5], [12], [7]. It is even alarming as the percentage of overweight and obese among female Malaysian nurses is higher than the general population which is 29.1% [13]. Furthermore, these data will pose a problem in terms of the integrity of nurses as promoters of health.

Table 1. BMI classification of female Registered Nurses

BMI Classification	Frequency (n = 1086)	Percentage
Underweight	51	4.7
Normal weight	485	44.6
Pre – obese (overweight)	364	33.5
Obese	186	17.1
Class I obese	150	13.8
Class II obese	29	2.7
Class III obese	7	0.6

3.2 DAILY LIFESTYLES OF THE FEMALE MALAYSIAN NURSES

The lifestyle of the nurses were classified into three variables: 1) daily eating patterns, 2) physical activity and exercise patterns, and 3) rest, recreation and stress reduction activities.

3.2.1 DAILY EATING PATTERNS

The food pyramid recommends that daily diet must be composed of more carbohydrates, followed by proteins, and a little of fats.

Table 2 shows the eating patterns of the nurses according to the type of food. Data shows that they "*always*" eat carbohydrates, fruits and vegetables, and drink coffee/tea/chocolate/fruit shake. They "*often*" eat protein-rich food, drink soya milk and yogurt, and many other types of milk and juice. They also claimed that they only eat fat-rich food "*sometimes*". The results of the study indicated that the nurse-respondents are following the appropriate diet. However, this data has to be taken with caution as the amount taken was not requested with the type of food consumed.

Table 2. Mean distribution of the respondents' eating pattern according to type of food

	Mean	Interpretation
Carbohydrate	3.43	Always
Fat	2.52	Sometimes
Protein	2.78	Often
Fruits and veges	3.47	Always
Soya milk + yogurt	3.16	Often
Coffee+tea+chocolate+shake	3.30	Always
Full cream milk	3.06	Often
Low fat milk	3.17	Often
Juice	3.14	Often

More (51.9%) than half of the nurse-respondents stated that they took at least 3 meals per day, which is considered ideal. Surprisingly, 37.2% claimed that they eat less than 3 meals per day. This can be attributed to the working condition of nurses as nurses work long hours, usually between 8 to 12 hours per shift [14], [15], [12]. Work scheduling and work demands, particularly during busy shifts can affect the nurses eating patterns. Nurses stated they skipped meals. Skipping breakfast has been associated with increased prevalence of obesity (odds ratio = 4.5) and a lower obesity risk was observed among subjects reporting larger numbers of eating episodes per day[16].

The data revealed that half of the respondents eat fast food at least once a week. Sobal, and Hanson (2014) found that family dinners eaten at fast food places were significantly associated with higher BMI [17]. However, in the present study there was no association between BMI and the frequency of fast food taken.

Table 3. Daily meals pattern and eating in fastfoods among nurse-respondents (n=1086)

Daily meal patterns	Frequency	Percentage
Frequency of meals/day		
• **Less than 3 meals/day**	404	37.2
• **3 meals/ day**	564	51.9
• **More than 3 meals/day**	118	10.9
Eating fastfoods per week		
• **Never eat**	397	36.6
• **once**	560	51.6
• **2-3 times**	108	9.9
• **More than 3 times**	21	1.9

The Malaysian government, through its National Health Plan, is currently campaigning for the achievement of quality health care and active healthy lifestyle among its people. In particular, it is striving to bridge the gap between knowledge and

behaviour, as well as to promote a supportive environment for healthy living. One of its foci is the reduction of the impact of fast food culture.

3.2.2 PHYSICAL ACTIVITY AND EXERCISE PATTERNS

Physical activity is any type of movement which promotes muscle contraction and which are relatively light and moderate[15]. Exercise, on the other hand, is a form of physical activity which is programmed, structured, and purposeful, and which is done with specific intensity and rigor. Daily physical activity and exercise patterns of the nurse-respondents showed that majority (90.7%) of the nurses worked 5 to 6 days per week at 8 hours per shift.Their physical activity depends on their area of assignment. Nurses' job is physically demanding in most of the areas [14], [12], [18]. Thus, it appears the respondents are maintaining active lifestyle. In addition, the data also shows they continue working when they get home. Majority (96 %) of the respondents stated they do household chores.

Table 4.Working days per week of the nurses

Working days/ week	Frequency	Percentage
1	4	0.4
2	4	0.4
3	7	0.6
4	17	1.6
5	442	40.7
6	544	50.0
7	68	6.3

However, 58.7%of the respondents stated they did not do any scheduled exercises (***Table 5***). One probable reason may be they are tired after working in the hospital and at home. The respondents probably did not have enough time for rest and exercise after a whole day of work. A local study done by Sy and Kandiah (2008) among 100 University Putra Malaysia employees aged 20-61 years old, revealed that "lack of time" is a major barrier to doing exercises and other weight management strategies[19].

A Cochrane Review on community wide interventions for increasing physical activity by Baker, Francis, Soares, Weightman, and Foster (2011) showed the relationship between physical activity and health. According to the review, not having enough daily physical activity may lead to poor health. The review supports that regular physical activity, which includes exercise, promotes wellbeing and can help to reduce the risks of chronic diseases[20].

Table 5. Scheduled exercise of the nurses

Frequency of exercise/ week	Frequency	Percentage
no exercise	638	58.7
1-2 times	368	33.9
3-4 times	68	6.3
more than 4 times	12	1.1

3.3 REST, RECREATION AND STRESS REDUCTION ACTIVITIES

Stress occurs when certain environmental demands exceed the adaptive capacity of the individual leading to both physiological and psychological changes [21]. High levels of stress often would lead to greater consumption of fast food meals and decreased physical activity.

More than half of the respondents claimed that they sleep between 6 to 8 hours per night (***Table 6***). According to the National Institute of Neurological Disorders and Stroke (no date) 7 to 8 hours of sleeping hours at night is adequate for adults [22]. However, 44 % of the respondents stated that they sleep less than 6 hours at night. One of the limitations of this study is not including the quality of sleep among the variables. The quantity of sleep may not be enough to describe sleep and rest.

In terms of the number of hours watching television, all the respondents agreed that they spend some time watching television every day. Moreover, 64% denied that they eat while watching television. Watching television means inactivity, and inactivity has been linked with obesity and heart disease [23], [24]. However, since the respondents only watched television between 2 to 3 hours per day, this data may not be considered so alarming.

Stress and coping are subjects which are considered part and parcel of health. Nurses are expected to be knowledgeable of stress reduction activities. The answer for the activities to reduce stress was not limited for single item choice (Table 8). Majority (52.4%) of the respondents "expressed their feelings to others" as a means of reducing stress. This was followed by "playing games", "doing physical tasks", and "eating something". A few of the respondents stated they meditate. Expressing one's problem and meditation are considered as some of the healthy ways of coping with stress. Doing other things such as playing or doing chores may also be considered healthy because it is a way of releasing energy.

Table 6.Nurses' activities of sleeping and watching television

ACTIVITIES	Frequency	Percentage
Sleeping hours per day		
Less than 6 hours	483	44.5
6-8 hours	592	54.5
More than 8 hours	11	1.0
Hours of watching TV/day		
1	164	15.1
2	385	35.4
3	264	24.2
4	187	17.2
5	52	4.8
6	34	3.3
Eating while watching TV		
Yes	387	35.6
No	699	64.6

Nearly one-fifth (18.4%) of the respondents self-reported that eating something reduced stress. However, it is not a healthy way of coping with stress because it may lead to more health problems. The study of Barrington et al (2012) particularly documented that people who eat when they are feeling stressed are called "*emotional eaters*". This type of people may have low eating awareness and tend to eat calorie dense food. The findings of their study suggested the inclusion of stress management and mindfulness techniques (what to eat and how to eat) as part of behaviour-change interventions [21].

Table 7. Stress reducting activities

Stress reduction activities	Frequency	Percent	Rank
Expressing your feelings to others	569	52.4	1
Playing games	253	23.3	2
Doing physical tasks	217	20.0	3
Eating something	200	18.4	4
Meditation	90	8.2	5

4 CONCLUSIONS AND RECOMMENDATIONS

The data shows that the majority of the nurse who responded to the study was Malays which is proportional to the current nursing workforce in Malaysia. The BMI data clearly shows that overweight and obesity is an actual and emerging issue among the nurses. This should be considered a vital issue, which needs to be addressed properly and promptly by the nurses themselves and other stakeholders. There is evidence of knowledge-behavior gap among the nurses with regards to overall lifestyle patterns. Their knowledge in terms of proper dietary choices, rest, recreational activities and stress reduction activities needs to be strengthened to promote the practice of healthier lifestyle.

Nurses must be monitored through annual medical check-ups with regards to BMI and related co-morbidities. Staff health should also be a priority issue. Health promotional programs for weight management must be combined with a supportive environment. Attention must be given to the nurses' work-related conditions which has an impact on stress.

Future research should target at intervention studies related to staff health promotion activities which would help to main the BMI of the nurses.

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