RESEARCH ARTICLE

Knowledge, health-related behaviour, and attitudes towards obesity among adult with obese and non-obese

Athirah Hanum Mohd Zabia and Chua Siew Kuan*

Centre of Physiotherapy, Faculty of Health Sciences, Universiti Teknologi MARA, Cawangan Selangor Kampus Puncak Alam, 42300 Bandar Puncak Alam, Selangor, Malaysia.

***Corresponding Author**

Chua Siew Kuan
Email: chuasiewkuah@uitm.edu.my

Abstract:

A multidisciplinary approach by assessing the obesity risk knowledge (ORK), health-related behaviors (HRB) and attitudes towards obese people (ATOP), specifically using the knowledge, attitudes and practices (KAP) model is essential to specify potential candidates for obesity reduction strategies. This study aimed to examine the difference of ORK, ATOP and HRB and its association between these three variables among adults with obese and non-obese. 148 forty-eight participants ages 23.20 (2.96) years were enrolled in this cross-sectional study. A self-administered questionnaire was used to collect information on sociodemographic, characteristics and KAP of the respondent on obesity. The anthropometric data (height and weight) were taken. The differences between groups in variables were analysed using independent t-test and the Spearman rank coefficient correlation for the relationships of variables. A quarter of participants were obese (27.7%). There was significant ($p < 0.01$) higher in HRB score among obese adult compared to non-obese with (59.56 ± 6.09 and 55.90 ± 5.81, respectively). A weak negative correlation was found between the ATOP score and HRB score of non-obese adult (rs= -0.25, $p = 0.01$). Obese people could have better effort in implementing good health-related behaviours towards obesity compare to those who was non-obese. Hence, the effort on combating obesity should be to target all levels of body type despite the targeted obese people. The health care institutions and health sciences students should cooperate in dealing this obesity issues as both may contribute a huge impact towards the effectiveness in managing this issue.

Keywords: attitudes and practices; health-related behaviour; obese; obesity risk knowledge.

1. INTRODUCTION

Obesity and overweight commonly defined as a condition where a person having abnormal or excessive fat accumulation in adipose tissue [1]. Obesity in adults has become a global epidemic and a major health hazard in Non-Communicable diseases (NCD) that raised worldwide attention [2]. The established research study reviewed that the proportion of Asian people with a high risk of cardiovascular disease and type 2 diabetes mellitus is notable at body mass index of overweight and obese [3].

The National Health and Morbidity Survey Malaysia (NHMS) 2011 and 2015 reported a gradual rise in the prevalence of overweight and obesity among Malaysian adults aged 18 years and older: 29.4% (overweight) and 15.1% (obesity) in 2011; 30.0% (overweight) and 17.7% (obesity) in 2015 [4,5]. In Malaysia, the prevalence of obesity was reported to be three to four folds higher in prevalence compared to Asian countries, namely China (5.0% in females; 3.8% in males), Taiwan (6.4% in females; 4.3% in males), Japan (3.3% in females; 4.5% in males) and India (4.2% in females; 3.7% in males) [6].

It has been a globalizing health challenge, in which greater weight stigmatization was experienced by the overweight and obese individual due to the increment of the prevalence [7]. The stigmatisations do not only affect an individual's emotional health and well-being (psychosocial dysfunction) but also give impacts to their health behaviours, as well as social participation [8].

It is unforeseen in some ways that the causes of non-communicable disease are obviously due to self-behaviours [9]. A longitudinal study among adolescent with overweight conducted by Oellingrath and Svendsen [10] found a significance correlation between health-related behaviours and BMI-specific in reduced likelihood of overweight or obese in their adulthood especially for those who have a proper eating pattern and moderate-to-vigorous physical activity level. The authors proposed that understanding the previous behaviour conditions, psychologically and sociologically in attempts to change health-related behaviour. Also, Tomiyama et al. [11] suggested that the approaches in changing the behaviours and attitudes are aimed at those who stigmatize, rather than towards the individuals of getting stigmatized.

In response to the rise of obesity issues in Malaysia, the strategies to lessen the current obesity epidemic are concerned with prevention. Obesity risk knowledge is a main aspect in providing sufficient understanding of the adverse effect of being obese thus may create awareness in preventing the condition among the adults [12]. Lacking

studies that explore the relationship of obesity risk knowledge (ORK), health-related behaviours (HRB) and attitudes towards obese people (ATOP). Hence, this study aimed to compare the obesity risk knowledge (ORK), attitudes towards obese people (ATOP) and health-related behaviours (HRB among adults who obese and non-obese and its relationship between these three variables.

2. METHODOLOGY

A cross-sectional study of 148 subjects among students and staffs was recruited from UiTM Puncak Alam Campus. The sample size was determined by using G power 3.1.9.2 software, with a statistical test of correlation, effect size $|\rho| =0.3$, α err prob =0.05 and power (1-β err prob) = 0.95. Total subjects required with 10% drop out is approximate 150 participants. This study was approved by the Ethic committee UiTM (600-IRMI (5/1/6REC/489/19). The participants were recruited via advertisements board at every faculty department in UiTM Puncak Alam, social networking such as Whatsapp, Telegram, Facebook and Twitter starting from November 2019 to January 2020. The eligible participants who are able to understand English was informed regarding the purpose and procedure of the study and asked to fill the consent form before entering the study. Self-reported of sociodemographic data included age, gender, race, status (student/staff) and education level.

2.1. Anthropometric data

Height was measured using a portable stadiometer (Seca model 213) to the nearest 0.1 cm, while for body weight was employed a self-calibrated mechanical weight scale (Salter model 407) to the nearest kilogram (kg). Each participant was classified into different classes based on body mass index (BMI) = weight (kg) / height^2 (m^2) [13]. The participants with BMI less than 23.0 kg/m^2 and more than 23.0 kg/m^2 were classified to non-obese and obese, respectively.

2.2. Knowledge of obesity health risk

Knowledge of the health risks related to obesity was employed Obesity Risk Knowledge (ORK-10) Scale [14] The total score ranged 0-10, higher score indicates the higher knowledge and awareness of the obesity health risks of an individual. The ORK-10 scale manifested strong criterion validity and has an internal consistency (Cronbach's $\alpha > 0.7$) [14].

2.3. Health-related behaviour of obesity

Health-related behaviour of obesity (HRB) was measured by the Health Behaviour Questionnaire [15]. The greater scores on all items (and therefore all variables) show good behaviour. This convenient criterion self-report demonstrated good psychometric properties and valid in determining different factors contributing to the tendency of getting overweight and obesity [15].

2.4. Perceptions of obesity

Attitudes Toward Obese Persons (ATOP) Scale was used to measure an individual's perception upon obesity [16]. This questionnaire comprised of 20-item scale based on a six-point Likert scale, participants have to indicate the extent to which they agree or disagree with 20 statements regarding obese people (ranging from -3= I strongly disagree to +3 = I strongly agree). Higher scores indicate positive attitudes towards obese people. The ATOP scale has acceptable reliability and validity (Cronbach's $\alpha = 0.76$) among adult populations [17].

2.5. Statistical analysis

Data were analysed using SPSS version 23. Descriptive statistics were based on age, gender, race, status, educational level, height, weight, BMI and score of ORK, ATOP and HRB. The independent t-test was used to compare the score of ORK, ATOP and HRB between participants with obese and non-obese. The Spearman rank coefficient correlation was used in examine the correlation of the score of ORK, ATOP and HRB in participants with obese and non-obese.

3. RESULT AND DISCUSSION

In this section, it is explained the results of research and at the same time is given the comprehensive discussion. Results were presented in figures, graphs, tables and others that make the reader understand easily [2, 5]. The discussion was made in several sub-chapters.

3.1. Characteristics of the participants

Table 1 showed the sociodemographic and other characteristics of the participants. Majority of female (79.1%) and degree students were participated in present study. More than a quarter of the participants were obese (mean BMI 30.52 ± 7.99 kg/m^2) and non-obese was 20.94 ± 2.65 kg/m^2.

Table 1: Socio-demographic characteristics of participants.

Variables	Total (n = 148)	
	n (%)	Mean ± SD
Age (years)		23.20 ± 2.96
Gender		
Female	117 (79.1)	
Male	31 (20.9)	
Race		
Malay	139 (93.9)	
Non-Malay	9 (6.1)	
Educational		
Degree and above	120 (81.1)	
Diploma	28 (18.9)	
Height (m)		1.59 ± 0.08
Weight (kg)		60.08 ± 17.76
BMI (kg/m^2)		23.60 ± 6.39
ORK score		40.95 ± 17.39
ATOP score		64.05 ±12.99
HRB score		56.92 ± 6.09

BMI=Body Mass Index, ORK=Obesity Risk Knowledge, ATOP=Attitude Towards Obese People, HRB=Health Related Behaviour.

3.2. Comparison between group in respect of age, anthropometric data, ORK score, ATOP score and HRB score.

There was no significant difference between group in age, height, ORK score and ATOP score (All $p > 0.05$). Adults with obese had significant ($p < 0.01$) higher HRB score compared to non-obese group (Table 2).

Table 2: Comparison of characteristics between participants with and without obese.

Variables	Non-obese (n = 107)	Obese (n = 41)	*p*-value
	Mean ± SD	Mean ± SD	
Age, years	22.96 ± 2.74	23.80 ± 3.44	0.12
Height, m	1.59 ± 0.08	1.60 ± 0.08	0.15
Weight, kg	52.90 ± 9.26	78.82 ± 20.84	<0.01**
BMI, kg/m^2	20.94 ± 2.65	30.52 ± 7.99	<0.01**
ORK score, %	40.84 ± 18.49	41.22 ± 14.35	0.91
ATOP score, %	64.35 ± 13.03	63.27 ± 13.02	0.65
HRB score, %	55.90 ± 5.81	59.56 ± 6.09	<0.01**

BMI=Body Mass Index, ORK=Obesity Risk Knowledge, ATOP=Attitude Towards Obese People, HRB=Health Related Behaviour

.*p<0.05, **p<0.01

3.3. Relation between obesity risk knowledge (ORK), attitudes towards obese people (ATOP) and health-related behaviour (HRB)

The relationship between the score of ORK, ATOP and HRB among non-obese and obese adult is shown in Table 3. There was weak negative association between ATOP score and HRB score in adult with non-obese (r= -0.25, $p < 0.01$). The score of ORK, ATOP and HRB did not show significant related in daults with obese and non-obese

Table 3: Spearman rank correlation between ORK, ATOP and HRB score among adults.

Variables	ORK score	ATOP score	HRB score
Non -obese			
ORK score	1	0.06	-0.12
ATOP score	-	1	-0.25*
HRB score	-	-	1
Obese			
ORK score	1	-0.30	0.01
ATOP score	-	1	-0.18
HRB score	-	-	1

BMI=Body Mass Index, ORK=Obesity Risk Knowledge, ATOP=Attitude Towards Obese People, HRB=Health Related Behaviour

*$p < 0.05$, **$p < 0.01$

In present study, the health-related behaviours measured by HRB score in adults with obese were significantly higher than those non-obese. The results suggested that obese people could have an effort in implementing good health-related behaviours towards obesity compare to those was non-obese. The present result may attribute to the fact that obese people may have greater exposure and experienced more on practising healthy lifestyle than non-obese [18]. This worth to be explore in depth in future study.

This present study also found there was no significant correlation between obesity risk knowledge and health-related behaviours. The present result is agreed with previous studies that people who had good awareness about the health risks of obesity might not influence their practice in combating it [19,20,21,22]. Previous studies proposed that awareness towards obesity did not directly change an individual perception towards leading good health-related behaviour towards obesity. For instance, study among peoples with good obesity risk knowledge demonstrated emotional eating strongly correlated with avoidance on good practicing on health-related behaviours towards obesity [23]. Others factor such as neighbourhood deprivation and low access to neighbourhood green space were both significantly associated with increased prevalence of obesity [24].

However, Adeleke et al. [25] contended this statement by claimed that lacking knowledge and awareness towards obesity may predispose a person tends into improper habits or attitudes on eating patterns, physical activities routine throughout their daily life. In fact, most of the adults who have better score of obesity awareness had positive behaviours towards obesity [26]. To conclude, it is a necessity to strengthen the understanding of what motivates people to deal with the social and environmental impact on individually.

There was no significant difference between groups in respect of obesity risk knowledge (ORK) and attitudes towards obese (ATOP) score (both $p > 0.05$ respectively). There was a satisfactory score observed in ORK (40.95 ± 17.39) and ATOP score (64.05 ± 12.99). The results indicated that the participants have good attitude towards obese, this may attribute to majority of participants more likely having the same level of awareness towards obesity and lower likelihood in culturing obesity stigmatization. In study by Tomiyama et al. [11] proposed that change in the behaviours and attitudes at those who stigmatize instead of aiming to people who were being stigmatized. The authors suggested that an effort on combating obesity should be to target all levels of community despite the BMI classification. Also, Mohd Hatta et al. [19] suggested that having a good attitude towards obesity may reduce the stigmatization towards the overweight and obese people, improve an effort on an individual's practices on combating obesity.

A weak negative association with significant correlation was found between attitudes towards obese people (measured by ATOP score) and health-related behaviours (measured by HRB score) of non-obese adult, this result suggested that people who had proper health-related behaviours towards obesity may attribute to have a negative attitude towards obesity or vice versa. Phelan et al. [27] found the negative attitude towards obesity by non-obese give high impact towards obese people, to be exact, the obesity stigma by the healthcare providers with their obese patient hits negatively in such implications including the failure on delivering the actual messages or awareness on managing obesity for the targeted patient. Hence, by having a good attitude may improve an individual's practices on combating obesity plus reduce the stigmatization towards the overweight and obese people [19].

It is a necessity to strengthen the understanding of the nature of what motivates people to deal with the social and environmental impact that act upon them individually. This present study had a high response rate, this lowers the risk of selection and response bias. Also, we considered the anthropometric data (height and weight) measured by a reliable and valid to prevent bias of recalling in self-report or inaccurate in calculating BMI. Also used valid and reliable instruments on assessing the obesity risk knowledge, attitudes towards obesity and health-related behaviour of obesity.

However, a relatively small number of participants who were obese (27.7%) compared with non-obese (72.3%) were found in this study. The participants were only within one institution in which caution must be taken when generalizing the findings to a larger population. Also, the self-reported questionnaire would have higher possibility of recall bias. Hence, assessing attitudes and health-related behaviour towards obesity is subject to socially desirable answers and somehow there's a possibility that participants feel unable to report their true condition.

For further recommendation it is a need to empowering the efforts towards developing and provide education awareness and willingness to change behaviour into a better practice towards obesity> Future study should also work on strengthening the understanding of the nature of what motivates people to deal with the social and environmental impact that act upon them individually. It is hoped that the findings from this present study may rule out a better and effective. The future research should on empowering the efforts towards developing and provide education awareness as well as the ability to change the knowledge and attitude into a better practice towards obesity, program on managing and combating obesity in the future.

4. CONCLUSION

Obese people could have better effort in implementing good health-related behaviours towards obesity compare to those who was non-obese. Hence, the effort on combating obesity should be to target all levels of body type despite the targeted obese people. Additionally, it is a necessity to strengthen the understanding of the nature of what motivates people to deal with the social and environmental impact that act upon them individually.

The health care institutions and health sciences students who work in the community as part of their public health clinical practice should in cooperate the obesity issues as both may contribute a huge impact towards the effectiveness in managing this issue.

ACKNOWLEDGEMENTS

We would like to thank the participants from Universiti Teknologi MARA, Puncak Alam campus who provided invaluable assistance in the data collection sessions.

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