Assessment of Health Beliefs Regarding Weight Control among Overweight and Obese Employees in University of Mosul: Applying Health Belief Model

تقييم المعتقدات الصحية فيما يتعلق بضبط الوزن بين الموظفين الذين يعانون من زيادة الوزن والسمنة في جامعة الموصل: تطبيق نموذج المعتقدات الصحية

Mahmoud Mohammad Ahmed*
Arkan Bahlol Naji**

الخلاصة:
خلفية البحث: أصبحت السمنة وزيادة الوزن من الأوبئة المنتشرة بين البالغين في كل من البلدان المتقدمة والنامية.
الاهداف: تهدف الدراسة إلى تقييم معتقدات الموظفين الذين يعانون من زيادة الوزن والسمنة فيما يتعلق بسلوكيات التحكم في الوزن.
المنهجية: تم استخدام تصميم دراسة وصفية لتقييم معتقدات الموظفين المتعلقة بالسيطرة على الوزن. أجريت الدراسة في الفترة بين 1 / اذار / 2021 ولغاية 4 / تشرين الأول / 2021. تم اختيار عينة عشوائية تتألف من 80 موظفًا مؤشر كتلة الجسم لديهم (25) فأكثر. تم استخدام استبانة نموذج المعتقدات الصحية لسلوكيات السيطرة على الوزن. تم حساب المقياس الكلي على مقياس لكرت الخماسي من 5 نقاط موزعة على المقاييس الفرعية السبعة لقياس المتغيرات في HBM بين الموظفين نحو التحكم في وزن الجسم. استخدمت الطرق الإحصائية الوصفية لتحليل البيانات (المتوسط، الانحراف المعياري، التكرار والنسبة المئوية).
النتائج: أظهرت نتائج الدراسة أن غالبية الموظفين المشاركين في الدراسة تتراوح أعمارهم بين (30-39) سنة، (43.8٪) ومعظمهم من الذكور (63.8٪). أشارت نتائج الدراسة إلى أن متوسط درجة معتقدات الموظفين المتعلقة بسلوكيات التحكم في الوزن كانت منخفضة (2.57) لجميع المقاييس الفرعية للمعتقدات الصحية.
الاستنتاج: استنتجت الدراسة ان اغلب معتقدات الموظفين الذين يعانون من زيادة الوزن والسمنة المتعلقة بالتحكم في الوزن، بشكل عام، كانت منخفضة لجميع المقاييس الفرعية لنموذج المعتقدات الصحية.
التوصيات: أوصى الباحثون بإجراء دراسات تهدف إلى تعزيز معتقدات البالغين الذين يعانون من السمنة وزيادة الوزن لتعزيز نواياهم تجاه التحكم في الوزن وتحفيزهم على تغيير سلوكياتهم غير الصحية إلى سلوكيات صحية مثل السلوكيات الغذائية والنشاط البدني لتقليل الوزن.
الكلمات المفتاحية: نموذج المعتقدات الصحية، الموظفون، السيطرة على الوزن.

ABSTRACT:
Background: Obesity and being overweight have become epidemics among adults in both developed and developing countries.
Aims of the study: The study aims to assess overweight and obese employees' beliefs related to weight control behaviors.
Methodology: A descriptive study design was used to assess the employee's beliefs related to weight control. The study was conducted between 1 / March / 2021 to 4 / October / 2021. The sample of the study consist of 80 employees whose Body Mass Index (25) or more. The instrument of the study is the Health Belief Model questionnaire for weight control behavior. The overall scale was measured on a 5-point Likert-type scale spread over the seven subscales to measure changes in HBM among employees toward body weight control. The data were collected by self-report questionnaire. Descriptive statistical methods were used to analyses data (Mean, Standard deviation, Frequency, percentage).
Results: The study showed that the majority of the participants in the study were aged between (30-39) years, (43.8%) and most of them were males (63.8%). The study finding indicated that the mean score of employees' beliefs related to weight control behaviors was low (2.57) for all the subscales of health beliefs.
Conclusion: Researchers concluded that the overweight and obese employees' beliefs related to weight control, in general, were low for all health belief model subscales.
Recommendations: The researchers recommended conducting studies aimed at reinforcing the beliefs of adults who suffer from obesity and overweight to reinforce their intentions towards weight control and to motivate them to change their unhealthy behaviors to healthy such as dietary behaviors and physical activity to reduce weight.
Keywords: Health Beliefs Model, Employees, Weight control.

* Ph.D. student / Community Health department / College of Nursing / University of Baghdad / Iraq.
Email: mahmood.ahmed@uomosul.edu.iq.
** Ph.D. / Community Health department / College of Nursing / University of Baghdad / Iraq.

INTRODUCTION

Obesity and being overweight have become epidemics in both developed and developing countries. In 2016, the World Health Organization (WHO) estimated that there were around 1.9 billion overweight adults aged 18 and above, with at least 650 million being obese [(1)].

Most people find it challenging to maintain a healthy weight, as seen and the high incidence of overweight and obesity around the globe, the accumulation of extra body fat is classified as overweight and obesity, a global health epidemic. People that are overweight have a Body Mass Index (BMI) level from 25 to 30 kg per square meter, while obese people have a BMI of 30 kg / square meter or more [(2)].

The body mass index (BMI) is the most popular metric for determining whether a child, adolescent, or adult is overweight or obese. BMI is a height-adjusted weight measure that is computed as kilograms divided by meters-squared (kg/m2) from measured weight (in kg) and height (in meters) [(3)]. Body Mass Index (BMI) is the internationally acknowledged standard measurement for adults [(4)].

Obesity has been more common in recent decades around the world, with the average adult BMI increasing from 22 kilograms per square meter in 1975 to 24 kilograms per square meter in 2014. Male obesity rates have climbed from 3.2 percent to 10.8 percent, while female obesity rates have from 22 kilograms per square meter in 1975 to 24 kilograms per square meter in 2014. From the standpoint of public health, obesity and overweight are significant risk factors for several chronic diseases, such as diabetes type two, heart diseases, and cancer. According to one survey, a two percent rise in society's average BMI results in a one yeas reduction in life expectancy [(5)].

Obesity and overweight are key risk factors for chronic no communicable diseases such diabetes, heart disease, musculoskeletal problems, and several malignancies [(6)]. These negative consequences, as well as excessive obesity rates, represent a significant burden on society. Obesity has societal costs that include both direct and indirect expenditures, such as medical costs. Furthermore, the majority of these indirect expenditures occur at work. Obese employees are less productive, have higher absenteeism rates, and are more prone to have workplace injuries [(7)].

Obesity and overweight have become a common health problem, especially among working people. Overweight and obesity are common among Dutch workers, with 37% being overweight or obese. Overweight or obese workers made up 41.6 percent of Australian workforce [(8)].

The Health Belief Model (HBM) is a psychological health behavior modification model that was developed in 1950 by some public health experts in the United States (US) with the goal of transforming human lifestyles toward healthy habits [(9)].

The health belief model proposes that the individuals who are aware that they are under the threat of real health risks are more committed to taking preventive measures if there are fewer costs less than the benefits of engaging in it [(10)].

Integrating the Health Belief Model into one-on-one health teaching sessions may help practitioners better understand and predict their clients' health behaviors. The HBM consists of a combination of health education and particular interventions aimed at encouraging people to adopt healthier lives. (Romano & Scott, 2014) According to the HBM, people's beliefs can be influenced by their demographic variables and previous social [(11)].

AIMS OF THE STUDY

The study aimed to assess the employee's beliefs regarding weight control based on the health belief model at the University of Mosul.

METHODOLOGY

A descriptive study design was used to assess the employee's beliefs related to weight control. The random sample selected which consist of 80 employees whose Body Mass Index is equal to or more than (25) selected randomly from the different colleges at the University of Mosul includes nursing, engineering, science, medicine, and education college. The study

was conducted from 1 / March to 4 / October 2021. The instrument of the study is the Health Belief Model questionnaire for weight management behavior [12, 13, 14, and 15]. The complete instrument of the study consists of two parts, part one demographic data such as age, gender, education level, marital status, work type, and BMI. Part two includes 88 items divided into 7 subscales based on health belief model constructs includes, perceived severity, perceived susceptibility, perceived benefits, perceived cue to action, self-efficacy, and behavioral intention of weight management.

The overall scale was measured on a (5) point Likert-type scale spread over the seven subscales to measure changes in HBM among employees toward body weight control. Responses to these items range from (1) strongly disagree to (5) strongly agree, with a higher score indicating higher agreement with the beliefs. The data were collected by self-report questionnaire. Descriptive statistical methods were used to analyses data (Mean, Standard deviation, Frequency, percentage).

RESULTS:

Table (1): Study sample according to their demographic variables

Variables		
Age	**F**	**%**
20-29Y	8	10
30-39 Years	35	43.8
40-49 Years	25	31.2
50-59 Years	12	15
Total	**80**	**100**
Gender	**F**	**%**
Male	51	63.8
Female	29	36.3
Total	**40**	**100%**
Marital status	**F**	**%**
Single	14	17.5
Married	66	82.5
Total	**80**	**100**
Work type	**F**	**%**
office work	69	86.3
Outside the office	11	13.8
Total	**80**	**100**
Educational level	**F**	**%**
Primary school	4	10
Elementary school	2	5
Intermediate school	17	21.25
Bachelor's degree	**57**	**71.25**
Total	**80**	**100**

The study indicated that the majority of the participants in the study were aged between (30-39) years, (43.8%) and most of them were males (63.8%), while the majority of them were practicing office work (86.3%).

Table (2): Distribution of the employee's beliefs related to weight control behaviors. (N=80)

HBM Concepts	**Score**	**Mean**	**SD**	**Minimum**	**Maximum**
Perceived severity	(1-5)	2.44	0.44	1.08	4.31

Perceived susceptibility	(1-5)	2.49	0.64	1.86	4.86
Perceived barriers	(1-5)	3.26	0.34	2.23	3.85
Perceived benefits	(1-5)	2.42	0.53	1.54	4.38
Cue to action	(1-5)	2.44	0.68	1.67	4.58
Self-efficacy	(1-5)	2.29	0.40	1.56	3.68
Behavioral intention of weight control	(1-5)	2.69	0.75	1.0	4.40
Total	(1-5)	2.57	0.57		

Table 2 shows that the theoretical framework for health beliefs indicates that it is possible to predict directly and indirectly an individual's intentions and behaviors for weight management based on their level of beliefs about weight.

DISCUSSION

Overweight and obesity in adults has been proven to significantly increase the likelihood of negative health effects [(16)]. Overweight and obesity have increased dramatically over the last two decades, according to the Behavioral Risk Factor Surveillance System [(17)].

The study showed that the majority of the participants in the study were aged between (30-39) years, (43.8%) and most of them were males (63.8%), while most of them were practicing office work (86.3%) that did not require physical effort which may be one of the causes of obesity among employees. These results agree with a previous study conducted by Chau JY, et al, showed that the majority of participants (83.1%) were under the age of 45, with females accounting for 58.4% and males accounting for 41.6 percent [(18)].

The results of the study were similar to many studies that have shown that overweight and obesity affect middle-aged adults. A study in India showed that the mean of employees' age of 47 years is the majority who try to control their weight to avoid diseases [(19)]. While in the other survey in Iraq by [(20)] demonstrates that overweight obesity may increase in the middle age 40 years.

The theoretical framework for health beliefs indicates that it is possible to predict directly and indirectly an individual's intentions and behaviors for weight management based on their level of beliefs about weight. The study finding indicated that the mean score of employees' beliefs related to weight control was low (2.57). The mean score of the total perceived severity of obesity was 2.44±0.44 for all participants and the mean score for perceived susceptibility (2.49±0.64). while the mean score of perceived barriers (3.26) This is because the participants believe that many barriers prevent them from adopting behaviors to maintain weight, including social, economic, and even psychological. The study results demonstrated a mean score of perceived benefits (2.42). Compensatory health beliefs are based on the notion that the negative, but often desired, consequences of unhealthy activity can be offset by participating in other healthy behaviors [(4)]. The mean score of cues to action was (2.44), and self-efficacy (2.29). All respondents' behavioral desire to lose weight was substantially related with cues to action and perceived self-efficacy [(21)].

Results of the study indicated that the mean score of behavioral intention for weight control (2.69). The behavioral intention of weight management will be positively influenced by a perceived threat, perceived benefits, and self-efficacy in dieting and exercise.

CONCLUSION

Researchers concluded that the overweight and obese employees' beliefs related to weight control generally were low for all health belief model subscales.

RECOMMENDATIONS

The researchers recommended conducting studies aimed at reinforcing the beliefs of adults who suffer from obesity and overweight to reinforce their intentions towards weight

control and to motivate them to change their unhealthy behaviors to healthy such as dietary behaviors and physical activity to reduce weight.

REFERENCES

1. Marques A, Peralta M, Naia A, Loureiro N, de Matos MG. Prevalence of adult overweight and obesity in 20 European countries, 2014. *Eur. J Public Health*. 2018; 28(2):295–300.
2. Odysseos C, Avraamidou M. Weight Management for Athletes: Important Things to be considered. *Arab J Nutr Exerc*. 2017; 1(3):155.
3. Colditz GA. The SAGE Encyclopedia of Cancer and Society [Internet]. SAGE Publications; 2015. Available from: https://books.google.iq/books?id=eIiECgAAQBAJ.
4. Thongworn S, Sirisuk V. Weight control specific compensatory health beliefs: Hypothetical testing and model extension. *Kasetsart J Soc Sci* [Internet]. 2018; 39(2):312–9. Available from: https://doi.org/10.1016/j.kjss.2017.06.006.
5. Semlitsch T, Stigler FL, Jeitler K, Horvath K, Siebenhofer A. Management of overweight and obesity in primary care—A systematic overview of international evidence-based guidelines. Obes Rev. 2019; 20(9):1218–30.
6. Robertson J, Lindgren M, Schaufelberger M, Adiels M, Björck L, Lundberg CE, et al. Body mass index in young women and risk of cardiomyopathy: a long-term follow-up study in Sweden. Circulation. 2020; 141(7):520–9.
7. Yuan F, Gong W, Ding C, Li H, Feng G, Ma Y, et al. Association of Physical Activity and Sitting Time with Overweight/Obesity in Chinese Occupational Populations. *Obes Facts*. 2021; 14(1):141–7.
8. Chau JY, van der Ploeg HP, Merom D, Chey T, Bauman AE. Cross-sectional associations between occupational and leisure-time sitting, physical activity and obesity in working adults. *Prev Med (Baltim)*. 2012; 54(3–4):195–200.
9. Baktash MQ, Naji AB. Efficacy of the Health Belief Model in Enhancing Weight Loss Behaviors to Prevent Stroke among Overweight and Obese Geriatrics Homes Residents in Baghdad City. *kufa J Nurs Sci* [Internet]. 2019; 9(2). Available from: https://www.iasj.net/iasj/article/174635.
10. Michie S, West R, Campbell R, Brown J, Gain forth H. ABC of Behavior Change Theories. 2014.
11. Hayden J. Introduction to health behavior theory. Jones & Bartlett Learning; 2017.
12. James DCS, Pobee JW, Brown L, Joshi G. Using the health belief model to develop culturally appropriate weight-management materials for African-American women. *J Acad. Nutr Diet*. 2012; 112(5):664–70.
13. Saghafi-Asl M, Aliasgharzadeh S, Asghari-Jafarabadi M. Factors influencing weight management behavior among college students: An application of the Health Belief Model. *PLoS One*. 2020; 15(2):e0228058
14. Park D-Y. Utilizing the Health Belief Model to predicting female middle school students' behavioral intention of weight reduction by weight status. *Nutr Res Pract*. 2011; 5(4):337–48.
15. McArthur LH, Riggs A, Uribe F, Spaulding TJ. Health belief model offers opportunities for designing weight management interventions for college students. *J Nutr Educ Behav*. 2018; 50(5):485–93.
16. Lung T, Jan S, Tan EJ, Killedar A, Hayes A. Impact of overweight, obesity and severe obesity on life expectancy of Australian adults. *Int J Obes*. 2019; 43(4):782–9.
17. Aleshire CMV. The Effects of A Comprehensive Weight Management Program, Incidence education, Physical Activity, and Behavior Change Techniques on Weight Loss and Health-Related Behaviors by Christina Vergara Aleshire, RDN, LD Bachelor's Degree in Nitrite. 2014; (May).

18. Attlee A, Atmani N, Stromtsov V, Ali F, Tikarly R, Ryad S, et al. Assessment of Weight Management Practices among Adults in the United Arab Emirates. Zemel MB, editor. *J Nutr Metab* [Internet]. 2017; 1050749. Available from: https://doi.org/10.1155/2017/1050749.

19. Little M, Humphries S, Patel K, Dewey C. Factors associated with BMI, underweight, overweight, and obesity among adults in a population of rural south India: A cross-sectional study. *BMC Obes* [Internet]. 2016; 3(1):1–13. Available from: http://dx.doi.org/10.1186/s40608-016-0091-7.

20. Pengpid S, Peltzer K. Overweight and obesity among adults in Iraq: Prevalence and correlates from a national survey in 2015. 2020.

21. McArthur LH, Riggs A, Uribe F, Spaulding TJ. Health Belief Model Offers Opportunities for Designing Weight Management Interventions for College Students. *J Nutr Educ Behav* [Internet]. 2018; 50(5):485–93. Available from: https://doi.org/10.1016/j.jneb.2017.09.010.