

The Focal Point of Overweight and Obesity Control among Healthcare Workers: Lifestyle Behavior Intervention or Psychological Stress Reduction?

Shaoqing Gong¹ and Xiangyang Tian^{2*}

¹Luohe Medical College, Luohe, Henan Province, China

²Chinese Center for Health Education, Chaoyang, Beijing, China

*Corresponding author: Xiangyang Tian, Chinese Center for Health Education, Chaoyang, Beijing, China, E-mail: healthtian@163.com

Received: 17-Oct-2023, Manuscript No. JOWT-23-117068; Editor assigned: 19-Oct-2023, PreQc No. JOWT-23-117068 (PQ); Reviewed: 02-Nov-2023, QC No. JOWT-23-117068; Revised: 09-Nov-2023, Manuscript No. JOWT-23-117068 (R); Published: 16-Nov-2023, DOI: 10.4172/2165-7904.S6-001

Citation: Gong S, Tian X (2023) The Focal Point of Overweight and Obesity Control among Healthcare Workers: Lifestyle Behavior Intervention or Psychological Stress Reduction? J Obes Weight Loss Ther S6:001.

Copyright: © 2023 Tian X, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Obesity has become a significant public health concern over the world. The Healthcare Workers (HCWs) have a high incidence of overweight and obesity, even higher than those within other occupation categories and general population. Physicians and nursing staff have to be on duty around the clock with frequent shift work, long working hours, and excessive emotional engagement. Intensive work makes them more prone to excessive psychological stress, as well as anxiety and depressed mood caused by stress management disorders. Excessive psychological stress, anxiety and depression often lead to sleep disorders, sedentary lifestyles and physical inactivity, and emotional eating in HCWs, resulting in overweight and obesity. Despite decades of research, strategies centered on lifestyle modification to tackle obesity are often unsuccessful. Although intervention studies in health care settings demonstrated improved weight outcomes, by employing methods involving nutrition education and healthy lifestyles, physical activity, and diet, an effective and sustainable solution for tackling overweight and obesity among HCWs has yet to be identified. All obesity related lifestyle behaviors, physiological and biochemical changes are originated from psychological stress through three mechanisms: Directly lead to unhealthy behaviors; activate the HPA axis with glucocorticoids release; promote the imbalance in appetite hormones including insulin, ghrelin and leptin, etc. HCWs are considered to experience a heavier psychological stress, which makes them more susceptible to the risk of overweight and obesity. Up to now, several intervention studies have achieved inspiring results in stress reduction among HCWs. Psychological stress reduction should be the focal point for overweight and obesity intervention among HCWs in the future.

Keywords: Healthcare workers; Overweight and obesity; Psychological stress

Introduction

Overweight and obesity has become a significant public health concern over the world. Healthcare Workers (HCWs) had a high incidence of obesity as well, even higher than those within other occupation categories and general population. Up to now, several countries have conducted national surveys on obesity in HCWs including England, Malaysia, China, Italy, France and Mexico [1-4] (Table 1). Additionally, a systematic review indicated that the global prevalence of overweight and obesity among nurses were 31.2% and 16.3%, respectively, highest in Eastern Mediterranean for overweight (37.2%) and in South-East Asia for obesity (26.4%) [5].

Overweight and obesity not only affect the health of HCWs themselves, but also their professional capability and efficiency to work as health caregivers, as well as the inclination and effectiveness of role model in persuading patients to adhere to a healthy lifestyle.

Although much had been done to lessen and reverse the spiking of obesity epidemic, no effective strategies have been identified. Over the past 30 years, no World Health Organization (WHO) member country has been able to reverse the trend of increasing overweight and/or obesity

in the population [6]. Furthermore, studies demonstrated that mitigation efforts addressing a healthier diet, physical activity, and medication typically result in a 5%-10% reduction in body weight, with high setback or relapse within a few years. Likewise, studies also concluded that an effective and sustainable solution for changing the behavior of health professionals to tackle overweight and obesity has yet to be identified [7].

Faced with the obesity epidemic and the increasing risk of obesity among HCWs, reflections should be made on whether past obesity prevention and control strategies centered on calories counting have fundamentally addressed the root causes of obesity problems [8]. As a chronic disease, overweight and obesity involve genetics, metabolic, hormonal and behavioral components. To address the higher prevalence and risks of overweight and obesity among HCWs, more efforts should be taken to understand the underlying factors, so as to shift the focus of interventions in the future.

This study aims to synthesize the latest literatures in the study of overweight and obesity in HCWs, analyze the risk factors of overweight and obesity, and explore the focus and direction of future obesity interventions.

Author	Country	Scale/Time	Age(year)	Prevalence of overweight/obesity (%)
				Overall:-- Nurse: 60.79/25.12
Kyle, et al., 2017	England	Nation-wide/cross-sectional/ 2008-2012	17-65	Other healthcare professionals: 49.00/14.39 Unregistered care workers: 68.12/31.88 Non-health-related occupations: 62.54/23.51 Overall: 33.1/21.1
Kunyahamu, et al., 2021 [1]	Malaysia	Nation-wide/cross-sectional/ 2019	Unknown (mean age: 35.64)	Nurses:--/50.0 Doctors:--/7.6 Others:--/42.4 Overall: 34.26/11.22
Guo, et al., 2023# [2]	China	Nation-wide/cross-sectional/ 2022	24-80 (Mean: 39.85 ± 9.41)	Males: 47.63/20.1 Females: 27.90/6.99
Esquivel-Chirino, et al., 2022	Mexico	Nation-wide/cross-sectional/ January 2020-April 2021	<25-->94	Overall:--/15.28
Fond, et al., 2022	France	Nation-wide/cross-sectional/ 2021	-	Overall: overweight/obesity: 36.09 Overall: overweight (BMI ≥ 24)/ obesity: 25.63
Xie, et al., 2023 [3]	China	Nation-wide/cross-sectional/ 2019(All endocrinologists, 31 tertiary hospitals across China)	Mean age: 39.59 (8.48)	Males: 48.85 Females: 17.62 Overall: 24.63/5.77
Yin, et al., 2023 [4]	China	Nation-wide/cross-sectional/ 2021	≥ 18 yrs	Males: 43.16/12.95 Females: 20.17/4.05

Note: Diagnosis based on BMI: 'underweight'<18.5), 'normal'=18.5-24.9, 'overweight'=25.0-29.9 'obese': BMI ≥ 30. #Overweight: 24.0 kg/m² ≤ BMI<28.0 kg/m²/ Obese: BMI ≥ 28.0 kg/m²

Table 1: Overweight and obesity rate among healthcare workers in some countries.

Lifestyle Behavioral Risk Factors of Obesity among HCWs

Physicians and nursing staff have to be on duty around the clock with frequent shift work, long working hours, and excessive emotional engagement. Epidemiological evidence indicated a considerable association between shift work and the adverse health consequences including obesity [9]. Shift work that disrupts sleep patterns, dietary habits, and exercise may make it more challenging for HCWs to stay fit and healthy. Generally, shift-working nurses are less likely to have regular leisure-time physical activity. Furthermore, shift workers commonly have more psychological complaints including bad mood, depression, irritability, anxiety, personality changes, and difficulty with personal relationships.

Poor sleep quality and short sleep duration has been found to be associated with higher consumption of fat and carbohydrate food, indicating a vicious cycle of poor sleep, poor diet, and obesity. Additionally, circadian misalignment is a corroborated risk factor for developing metabolic syndrome, obesity and type-2 diabetes. The demanding schedules of the medical services providing organizations can lead to poorer sleep quality, shorter sleep duration, sleep out of phase with circadian rhythms for HCWs. Some research suggested that HCWs are among the workforce of all industrial sectors with the shortest sleep duration, and a study reported more with 6 or less hours sleep each day were reported between the periods of 1985-1990 and 2004-2007. Studies showed a high prevalence of poor sleep quality, work-related stress among the HCWs due to the COVID-19 pandemic [10].

Studies revealed that the stress-induced poor-quality sleep and short sleep duration might promote an imbalance in appetite hormones that increase feelings of hunger and metabolic changes, insulin resistance, and reduced lipid tolerance. Actually, poor sleep or sleep deprivation can lead to elevated levels of ghrelin, decreased levels of leptin, and increased hunger and appetite.

Latest studies support the significant associations between obesity and physical inactivity [11]. Most HCWs are lack of physical activities. For instance, contrary to the assumption that nurses spend very little of their time being sedentary, physical inactivity have been reported in nurses across many countries, and they spend a considerable proportion of their day and work time engaged in sedentary behavior.

A study found that high emotional eating is more predictive of weight gain than the sedentary lifestyle, excessive alcohol consumption, and unhealthy eating [12]. Research has shown that overweight and obese individuals often experience uncontrollable hedonic overeating, and altered signaling of appetite regulating hormones, leading to disinhibited/binge eating, emotional eating as a comfort to stress, and eating impulsivity or reward-related eating triggered by food cues [13]. Other dietary factors related to overweight and obesity in HCWs might include frequent consumption of fried food, breakfast skipping, alcohol drinking [2].

Although the worksite-based intervention studies in health care settings demonstrated improved weight outcomes, by employing moderate to high-intensity behavioral strategies, multicomponent or any mode of intervention delivery, such as nutrition education and healthy lifestyles, physical activity, and diet, delivered by a trained professional, an effective and sustainable solution for changing the behavior of health professionals to tackle overweight and obesity has yet to be identified [7].

Stress is the Origin of Overweight and Obesity with Lifestyle Behaviors as Mediators

Stress is defined by WHO as a state of worry or mental tension caused by a difficult situation, a natural human response that prompts us to address challenges and threats. To adapt to the stressful events and its effects, the human's body has to make changes in biochemical, physiological, cognitive, and behavioral conditions, which affects our overall well-being significantly.

Overweight and obesity are directly caused by caloric intake greater than caloric expenditure, but ultimately, all behaviors and lifestyles are external manifestations of human psychological activities. As a psychological process, stress and stress management disorders have a fundamental impact on people's obesity related behaviors and the physiological and biochemical changes associated with these behaviors. Hence, it is the stress the culprit behind overweight and obesity that we should deal with actually.

Stress directly lead to unhealthy behaviors

Stress and stress management disorders can lead to negative emotional problems such as anxiety and depressed mood, resulting in increased appetite and an increased risk of overweight and obesity [14]. Studies found that HCWs with persistent stress and/or recurrent anxiety/depressed mood were more likely to stay up late habitually, often consume take-out food, fried food, snacks or desserts, sugary drinks, smoke cigarettes and drink alcohol [2]. Another possible mechanism

might be that persistent stress and/or recurrent anxiety/depressed mood play a substantial role in sleeping disorders and physical inactivity.

HCWs engage in stress-induced eating due to the high workload, especially during shift work, resulting in both malnutrition and over-nutrition. Closely intertwined with stress, insufficient sleep (≤ 6 h/d) has been postulated to be one of the key non-traditional determinants of excess body weight. A prospective longitudinal study found burnout and psychological distress was consistently related to occupational role and was highest in nurses during the COVID-19 pandemic. And the emotional exhaustion in nurses and other healthcare professionals remained higher after the pandemic than that prior to the pandemic [15].

Epidemiological evidence indicated that emotional eaters consume energy-dense foods more frequently and are at increased risk for developing obesity. More and more evidence suggests the mediating role of emotional eating between depression and obesity. Additionally, study notably indicated that the relationship between depression and obesity is bidirectional.

Stress activate the HPA axis

The latest research revealed that fat accumulation in the body is associated with human neuroendocrine activity. Research shows that persistent stress could activate the human Hypothalamic–Pituitary–Adrenal axis (HPA), boost the secretion of cortisol (glucocorticoids), affect sleep, and increase the intake of “self-rewarding food” (high fat and high sugar), thereby raise the incidence of obesity, especially abdominal obesity [16]. The persisting high-level of glucocorticoids could lead to a broad range of problems including the metabolic syndrome, obesity, cancer, mental health disorders, cardiovascular disease and increased susceptibility to infections.

Stress promote the imbalance in appetite hormones

Many gut hormones are involved in regulating appetite and food intake related to overweight and obesity development, including insulin, ghrelin, peptide YY, cholecystokinin, GLP-1, TNF- α , IL-6, leptin and adiponectin [17]. Hyperinsulinemia and insulin resistance are linked with an increased risk of obesity. Ghrelin increases immediately with the stress (physical, psychological, or both) induction within less than five minutes and returns to baseline levels within 45 min [18]. Leptin resistance plays a major role in obesity.

Glucocorticoids released by the adrenal cortex play a key role in regulating the appetite hormones through: (1) Increasing NPY/AGRP; (2) Decreasing the sensitivity of the brain to leptin (resistance); (3) Reducing ability of insulin to inhibit NPY/AGRP (ARC); (4) Responding to increased brain energy demand; (5) Circulating ghrelin levels.

In addition, oxidative stress is considered one of the pathogenic factors for obesity [17]. Notably, both chronic stress, and activation of the HPA axis provokes oxidative stress.

Psychological Stress and Related Anxiety and Depression among HCWs

HCWs (HCWs) are considered to experience a heavier workload and mental stress than their counterparts in many other industries due to their longer work hours, less personal time and higher burnout rate, possibly making them more susceptible to the risk of overweight and obesity.

Study suggests that the persistent stress and/or recurrent anxiety/depressed mood of HCWs stem from various aspects including overwork, occupational risk pressure, and lack of psychological counselling and stress relief services [2,19]. A Chinese study indicated that nurses are among the high-risk group for overweight and obesity due to high stress, low-labor medical work, irregular diet, and lack of exercise, and junior position, administrative duty, old age, and male sex tend to be obesity. And overweight and obesity occurred rapidly in the first 2 years of their career. Additionally a study on primary healthcare providers in urban communities in China suggested that males, those with lower professional title, nursing work, those with higher perceived stress level, and suffering from severe fatigue were more likely to have depression and anxiety [4].

Over the past three years, the extra burden from the COVID-19 pandemic has been substantial for healthcare personnel, and a systematic review and meta-analysis reported prevalent anxiety, acute stress, burnout and Post-Traumatic Stress Disorder (PTSD), and among emotional symptoms, depression. Although WHO declared an end to COVID-19 as an international public health emergency, we will have to struggle with the effects of the pandemic in the form of deterioration of mental and physical health among the HCWs for many years to come. Currently, the psychological problems that occurred during the COVID-19 pandemic may be exacerbated by factors related to the economic crisis.

Stress Reduction Interventions Targeted HCWs

Now that all behaviors and lifestyles related to overweight and obesity stem from psychological stress, we should relocate our focal point to changing the stress of HCWs. To our pleasure, some intervention studies focused on stress management have achieved encouraging results.

Studies showed that the effectiveness of individual-level stress interventions is inspiring by focusing attention on or away from the experience of stress [20]. Evidence show exercise is one of the best ways to deal with stress, which helps to relieve tension and improve mood, including yoga and qigong. Studies evidenced finding joy in work, higher levels of social support and optimism were associated with lower levels of depression and generalized anxiety.

Conclusion

The occupational nature of overwork, working overtime, and excessive emotional engagement causes healthcare workers to experience more psychological stress than other occupational groups and the general population. Anxiety and depression related to these psychological pressures and stress management disorders could lead to unhealthy lifestyles such as sleep disorders, physical inactivity, emotional eating resulting in overweight and obesity. Although the interventions targeting behavior and lifestyle may seem work in the short term, the effective and sustainable solution for changing the behavior of health professionals to tackle overweight and obesity has yet to be identified. The lifestyle behaviors related to overweight and obesity mainly stem from psychological stress and stress management disorders, to improve the psychological stress management would be a critical strategy to fundamentally tackle the problem of overweight and obesity in healthcare workers. Approaches such as personalized stress management, sufficient physical activity and exercise, and social support have demonstrated an inspiring results in reducing stress among healthcare workers.

References

1. Kunyahamu MS, Daud A, Jusoh N (2021) Obesity among health-care workers: Which occupations are at higher risk of being obese?. *Int J Environ Res Public Health* 18:4381.
2. Guo X, Gong S, Chen Y, Hou X, Sun T, et al. (2023) Lifestyle behaviours and stress are risk factors for overweight and obesity in healthcare workers: A cross-sectional survey. *BMC Public Health* 23:1791.
3. Xie F, Jiang L, Liu Y, Wang M, Liu H, et al. (2023) Gender differences in the associations between body mass index, depression, anxiety, and stress among endocrinologists in China. *BMC Psychol* 11:1-8.
4. Yin T, Lu Y, Xiong W, Yu C, Yin D, et al. (2023) Occupational risk factors for physical and mental health in primary healthcare providers: A national cross-sectional survey from 62 urban communities in China. *J Multidiscip Healthc* 16:751-762.
5. Sadali UB, Kamal KK, Park J, Chew HS, Devi MK (2023) The global prevalence of overweight and obesity among nurses: A systematic review and meta-analyses. *J Clin Nurs*.
6. Chia A, Ong J, Bundeale A, Lim YW (2022) Social entrepreneurship in obesity prevention: A scoping review. *Obes Rev* 23:13378.
7. Garibay-Lagos CS, Martos-Boira MI, Landeta-Iza E, Contreras-González GB, Wanden-Berghe C, et al. (2023) Occupational health of health-care workers with overnutrition: Scoping review with meta-analysis. *Nutrients* 15:3416.
8. Panchbhaya A, Baldwin C, Gibson R (2022) Improving the dietary intake of health care workers through workplace dietary interventions: A systematic review and meta-analysis. *Adv Nutr* 13:595-620.
9. Tavares Amaro MG, Conde de Almeida RA, Marques Donalsonso B, Mazzo A, Negrato CA (2023) Prevalence of overweight and obesity among health professionals with shift work schedules: A scoping review. *Chronobiol Int* 40:343-352.
10. Chutiya M, Bello UM, Salihu D, Ndwiga D, Kolo MA, et al. (2022) COVID-19 pandemic-related mortality, infection, symptoms, complications, comorbidities, and other aspects of physical health among HCWs globally: An umbrella review. *Int J Nurs Stud* 129:104211.
11. Silveira EA, Mendonça CR, Delpino FM, Elias Souza GV, Pereira de Souza Rosa L, et al. (2022) Sedentary behavior, physical inactivity, abdominal obesity and obesity in adults and older adults: A systematic review and meta-analysis. *Clin Nutr ESPEN* 50:63-73.
12. Tao H, Shen D, Zhou Y, Sun F, Li G, et al. (2022) A systematic review and meta-analysis of metabolic syndrome prevalence in Chinese inpatients with bipolar disorder. *Horm Metab Res* 54:587-592.
13. Nagl M, Hilbert A, Zwaan MD, Braehler E, Kersting A (2016) The German version of the Dutch eating behavior questionnaire: Psychometric properties, measurement invariance, and population-based norms. *PLoS One* 11:1-15.
14. Dakanalis A, Mentzelou M, Papadopoulou SK, Papandreou D, Spanoudaki M, et al. (2023) The association of emotional eating with overweight/obesity, depression, anxiety/stress, and dietary patterns: A review of the current clinical evidence. *Nutrients* 15:1173.
15. Maunder RG, Heeney ND, Hunter JJ, Strudwick G, Jeffs LP, et al. (2022) Trends in burnout and psychological distress in hospital staff over 12 months of the COVID-19 pandemic: A prospective longitudinal survey. *J Occup Med Toxicol* 17:11.
16. Kumar R, Rizvi MR, Saraswat S (2022) Obesity and stress: A contingent paralysis. *Int J Prev Med* 13:95.
17. Tobore TO (2020) Towards a comprehensive theory of obesity and a healthy diet: The causal role of oxidative stress in food addiction and obesity. *Behav Brain Res* 384:112560.
18. Bouillon-Minois JB, Outrey J, Pereira B, Adeyemi OJ, Sapin V, et al. (2022) The impact of job-demand-control-support on leptin and ghrelin as biomarkers of stress in emergency HCWs. *Nutrients* 14:5009.
19. Jin Z, Xing M, Libin Y (2020) Structure of occupational stressors and coping strategies of clinicians in China. *Med Soc* 33:93-96.

20. Tamminga SJ, Emal LM, Boschman JS, Levasseur A, Thota A, et al. (2023) Individual-level interventions for reducing occupational stress in healthcare workers. *Cochrane Database Syst Rev* 5:2892.