

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

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## 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

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: BMI ≥ 24.0 kg/m<sup>2</sup> BMI < 28.0 kg/m<sup>2</sup>/ Obese: BMI ≥ 28.0 kg/m<sup>2</sup>

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

causal factors. The relationship between stress, lifestyle behaviors, and obesity is complex and multifaceted. Stress can lead to emotional eating, which is a form of overeating that is driven by emotions rather than hunger. Emotional eating is often characterized by eating high-calorie, high-fat, and high-sugar foods, which can lead to weight gain and obesity. Additionally, stress can lead to physical inactivity, which is another major factor in the development of obesity. Physical inactivity can lead to a decrease in energy expenditure, which can also contribute to weight gain and obesity. Therefore, stress is a significant factor in the development of obesity, and it is important to address stress as part of any weight management strategy.

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

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