

Overweight and Obesity in Nursing Staff: A Growing Concern

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ABSTRACT

Overweight and obesity among nurses are growing public health concerns with serious implications for both individual well-being and healthcare systems. Due to high job demands, irregular shifts, and limited time for self-care, nurses face a heightened risk of weight-related issues. This systematic review examined scientific studies published from 2013 to 2023 to explore the prevalence, contributing factors, and consequences of excess weight in nursing staff.

Findings reveal that overweight and obesity are highly prevalent among nurses, often exceeding rates seen in the general population. Contributing factors include poor eating habits, sedentary lifestyles, shift work, psychological stress, and lack of institutional support. These conditions increase the risk of chronic illnesses, fatigue, and emotional burnout, which may affect job performance and patient care quality. Despite the growing evidence, workplace interventions remain limited and underused.

Creating supportive environments that encourage healthy behaviors is essential. Institutional policies must address structural challenges such as limited access to nutritious food, lack of time for meals or breaks, and insufficient physical activity opportunities. Implementing wellness programs, offering stress management resources, and ensuring organizational commitment to nurse health are key strategies that can promote long-term improvements in both staff well-being and the effectiveness of healthcare delivery.

KEYWORDS: Nurses, Overweight, Obesity, Occupational Health, Workplace Interventions.

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INTRODUCTION

Overweight and obesity have become urgent and growing public health concerns worldwide, not only for the general population but also for healthcare professionals. Defined by the World Health Organization (WHO) as abnormal or excessive fat accumulation that may impair health, these conditions are associated with a significant burden of chronic diseases, including type 2 diabetes, cardiovascular disease, musculoskeletal disorders, and certain types of cancer. The global rise in the prevalence of overweight and obesity is multifactorial, involving biological, environmental, behavioral, and occupational influences that intersect and compound each other in complex ways ¹.

Nurses, who form the largest segment of the healthcare workforce, are not immune to these challenges. On the contrary, studies show that nurses may be more susceptible than the general population to developing overweight and obesity due to the nature of their profession. The job of a nurse is characterized by high physical and emotional demands, rotating shifts, long hours, and significant stress.

These work conditions often lead to inadequate sleep, poor dietary patterns, low levels of physical activity, and emotional eating all of which contribute to weight gain and hinder weight loss efforts ^{2,3}.

In many healthcare institutions, structural limitations such as insufficient breaks, limited access to nutritious meals, and lack of dedicated spaces or time for physical activity further aggravate the issue. In some cases, nurses report feelings of guilt or fear of being judged when taking time for self-care, reinforcing a culture that prioritizes patient care over personal health ^{4,5}.

The consequences of overweight and obesity among nurses extend beyond individual health outcomes. Excess body weight can lead to chronic fatigue, musculoskeletal discomfort, and reduced physical capacity, which may affect job performance and increase the risk of workplace injuries. Moreover, obesity-related stigma within healthcare settings may contribute to psychological distress and burnout, leading to decreased job satisfaction and higher turnover rates. These

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conditions ultimately compromise the quality of care provided to patients^{6,7}.

From a broader perspective, overweight and obesity among nursing staff also pose a challenge to the credibility and effectiveness of public health promotion. Nurses are expected to serve as role models for healthy behaviors and are often responsible for educating patients about lifestyle modifications. When nurses themselves struggle with weight management, it may reduce the impact of their counseling and hinder patient trust and adherence to recommended interventions⁸.

Given the multidimensional impact of overweight and obesity in this population, there is a pressing need to develop and implement effective institutional strategies aimed at promoting the health and well-being of nurses. This includes creating supportive environments, facilitating access to healthy food options, offering workplace wellness programs, and integrating stress management and physical activity opportunities into daily routines. Recognizing and addressing the unique occupational risk factors that nurses face is crucial in reversing current trends and fostering a healthier, more resilient healthcare workforce^{9,10}.

CONCEPTUAL FRAMEWORK

Overweight and obesity are now widely acknowledged as chronic medical conditions characterized by the abnormal or excessive accumulation of body fat that poses significant health risks. The World Health Organization defines overweight and obesity based on the extent of fat accumulation and its adverse effects on health. These conditions arise when the energy consumed from food and beverages consistently exceeds the body's energy expenditure through metabolism and physical activity. This long-term energy imbalance leads to progressive fat storage, primarily in adipose tissues, which eventually disrupts the body's physiological homeostasis^{1,3}.

It is important to emphasize that both overweight and obesity go beyond a simple matter of body appearance; they are pathophysiological states that significantly contribute to the burden of non-communicable diseases worldwide, including type 2 diabetes, hypertension, coronary heart disease, and certain cancers. The increase in these conditions has been described as epidemic in nature due to their global reach and rapid rise, especially in middle- and low-income countries and among occupational groups such as nurses who are disproportionately affected due to work-related lifestyle factors^{11,16}.

The World Health Organization uses Body Mass Index (BMI) as the primary tool for categorizing weight status. BMI is calculated by dividing an individual's weight in kilograms by the square of their height in meters (kg/m^2). This measurement, though indirect, is broadly used due to its practicality and reproducibility. According to the WHO, a BMI between 18.5 and 24.9 kg/m^2 is classified as normal

weight, between 25.0 and 29.9 kg/m^2 as overweight, and a BMI of 30.0 kg/m^2 or higher as obese^{4,5,6,7}.

Obesity itself is further subclassified into three levels based on severity: Class I (BMI 30.0–34.9), Class II (35.0–39.9), and Class III or morbid obesity (≥ 40.0). These classifications are crucial because they correlate with the increasing likelihood of comorbidities. Nevertheless, BMI does not account for the distribution of fat or distinguish between fat and lean mass, which is why health professionals are encouraged to use additional anthropometric measurements. Despite its limitations, BMI remains a key epidemiological marker and screening tool for identifying individuals at risk and implementing public health interventions^{4,5,6,7}.

To overcome BMI's limitations, additional measures such as waist circumference (WC) and waist-to-hip ratio (WHR) have become critical in diagnosing central obesity, which refers to excess abdominal fat. WC is particularly valuable in identifying individuals with a high risk of metabolic syndrome and cardiovascular disease, even if their BMI is within a normal range^{2,6}.

For instance, thresholds have been established indicating that a WC above 88 cm in women and 102 cm in men significantly increases the risk of cardiovascular and metabolic complications. Likewise, WHR provides insight into the proportion of fat stored centrally versus peripherally, and high WHR values are linked to insulin resistance, inflammation, and dyslipidemia. These parameters are especially relevant in occupational health assessments, including nursing personnel, as their working conditions—such as night shifts, stress, limited access to nutritious food, and physical inactivity—favor the development of visceral obesity. A more comprehensive diagnostic framework that integrates BMI, WC, and WHR allows for early detection and tailored interventions^{8,10,12}.

Obesity is now seen not merely as a result of lifestyle choices but as a multifactorial disease influenced by genetics, environment, socioeconomic status, psychological stress, and occupational context. In nursing professionals, these multifactorial contributors are particularly pronounced. Nurses often experience high workloads, irregular shifts, and emotional exhaustion, all of which disrupt circadian rhythms and promote unhealthy eating habits and physical inactivity. These factors increase the likelihood of developing obesity-related disorders at an earlier stage compared to the general population^{3,9,10}.

Furthermore, the role of stress and sleep deprivation in modulating hormonal signals that regulate appetite and fat storage—such as ghrelin and leptin—adds another layer of complexity to the condition. Recognizing obesity as a disease rather than a personal failure is essential to reduce stigma and promote health-seeking behavior among nursing staff. Addressing obesity in this group requires structural changes, not only at the individual level but also in workplace culture and policy^{13,15}.

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I. GLOBAL AND REGIONAL PREVALENCE OF OBESITY IN NURSING STAFF.

The global rise in overweight and obesity among nursing professionals is not confined to a specific region but is evident across multiple continents. In Asia, particularly China, studies have reported variable prevalence rates, influenced by institutional policies, nutritional habits, and levels of physical activity. A systematic review conducted in China identified multiple influencing factors, including work stress, long shifts, and low levels of exercise, contributing to the increasing body mass index (BMI) of nurses. Cultural norms and work schedules often result in irregular eating patterns and limited opportunities for physical activity, exacerbating weight gain among healthcare staff ¹⁰.

Similarly, in the Middle East, specifically in Bahrain, a cross-sectional study found a high proportion of overweight and obese nurses. Factors such as sedentary work environments, high-calorie diets, and shift work were major contributors. The study highlighted that nearly half of the nurses were either overweight or obese, raising concern over long-term implications for occupational health and service delivery efficiency ¹².

Latin America shows a comparable trend. In Mexico, data from various regions including Guerrero and Torreón demonstrate significant obesity rates among nursing staff, often exceeding national averages. Researchers have pointed out that poor workplace nutrition, lack of institutional health programs, and emotional exhaustion linked to job demands contribute to these statistics ^{1,7}. In Ecuador, the nursing staff in hospitals also faces elevated rates of overweight and obesity, which have been directly associated with a decline in workplace performance and an increased risk of developing non-communicable diseases ⁹.

In South America, Argentina reports alarming statistics as well. Studies from Corrientes province highlight that a large percentage of nurses exhibit elevated BMI values. The lack of institutional measures for health promotion and the intense workloads in hospital settings were identified as critical contributing elements ¹⁹.

Across Europe, findings from Spain and related countries reflect similar health challenges in nursing populations. Although access to information and preventive health campaigns may be more widespread, shift work, emotional labor, and inadequate institutional support continue to play a significant role in the accumulation of excess weight ⁸.

Lastly, in North America, while the PDF includes less direct data, the broader pattern observed globally aligns with findings from various countries, indicating that the profession's intrinsic demands, stress, and irregular routines universally predispose nursing personnel to overweight and obesity ^{4, 15}.

The prevalence of overweight and obesity among nursing staff varies significantly depending on geographic region and the nature of healthcare institutions, whether public or private. In Latin America, several studies have shown

disproportionately high rates of overweight and obesity among nurses, particularly in public health institutions. For example, Mexican public health centers in states such as Guerrero and Coahuila report a majority of their nursing staff exceeding the normal BMI range. These institutions often operate under resource-limited conditions, where long shifts, high patient-to-nurse ratios, and lack of wellness programs are common. The absence of institutional support for physical activity or balanced meals contributes to unhealthy lifestyles among nurses ^{1, 7}.

In contrast, private healthcare institutions in the same region, though less frequently studied, tend to offer more structured work environments, better infrastructure, and in some cases, employee wellness programs. However, the benefits of these features do not fully eliminate the risk of obesity, as emotional stress, administrative workload, and time constraints still limit the ability of nurses to maintain healthy habits. Studies suggest that while nurses in private institutions might have slightly better access to resources, the cultural norms around food and sedentary behavior remain prevalent, impacting both sectors almost equally ^{2, 9}.

Looking at North America, though the report includes less empirical data from this region, global meta-analyses and literature reviews indicate that nurses across Canada and the United States are also at high risk of obesity. The high-pressure work culture, frequent overtime, and insufficient recovery periods mirror the challenges seen in Latin American countries. Furthermore, the fragmentation of health services and inconsistencies in institutional policies across states or provinces can influence the availability of preventive measures like nutritional counseling or gym access. As such, overweight and obesity are considered occupational health concerns in both public and private sectors across North America ¹⁵.

In Europe, the prevalence tends to be slightly lower compared to Latin America, but nurses still face considerable challenges. Countries like Spain have identified overweight and obesity as emerging occupational risks among healthcare personnel. European private hospitals may provide more access to healthy food options and health promotion programs; nonetheless, public sector nurses often report more demanding workloads, night shifts, and stress, all of which contribute to unhealthy weight gain. The discrepancy between institutional policies on occupational health is evident, with public systems frequently lagging behind in implementing structured preventive strategies ^{8, 5}.

The comparison highlights that public institutions, particularly in developing countries, tend to have higher obesity rates among nursing staff, mainly due to resource limitations, lack of health-promotion infrastructure, and work-related stressors. Private institutions, while offering comparatively better conditions, do not necessarily translate into healthier outcomes, as lifestyle habits, stress, and shift schedules persist as contributing factors in both sectors. Regardless of geography, the trend suggests a global

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occupational health challenge that transcends borders and institutional classifications^{3, 4, 12, 15}.

Over the past two decades, the prevalence of overweight and obesity among healthcare professionals has increased steadily, with nursing personnel being among the most affected groups. Nurses are particularly vulnerable due to the demanding nature of their profession, which includes long shifts, high emotional and physical stress, rotating schedules, and limited time for self-care. These occupational conditions contribute significantly to the deterioration of eating habits and physical inactivity, both of which are key contributors to excess body weight. The rise in body mass index (BMI) among nurses is not only a personal health concern but also a professional and institutional issue, as it can impair performance, increase absenteeism, and affect the quality of patient care^{1, 6, 13}.

Studies from different healthcare systems and regions reveal a consistent upward trend. For instance, research in Latin America, especially in Mexico and Ecuador, confirms that a significant proportion of nursing staff is either overweight or obese, with rates often surpassing 60 percent in some facilities. These findings are echoed in reports from Bahrain and China, where similar patterns are emerging among nursing staff in both hospital and primary care settings. Even in regions with better-developed health systems, such as Europe and North America, the trend remains concerning, with moderate to high obesity rates being documented in several nursing cohorts^{3, 9, 10, 12}.

Multiple factors contribute to this phenomenon, including institutional shortcomings in promoting healthy lifestyles among healthcare workers. Workplaces often lack designated time for physical activity or provide unhealthy food options in cafeterias. Nurses may also suffer from sleep deprivation due to night shifts and suffer chronic stress, both of which are associated with metabolic changes that promote weight gain. Furthermore, the rising trends are closely linked with gender, as the nursing workforce is predominantly female, and women in healthcare frequently carry the dual burden of professional duties and domestic responsibilities, leaving little room for preventive health behaviors^{5, 11, 14}.

Of particular concern is that obesity in nurses is not just rising but becoming normalized within the profession. Some studies describe how overweight bodies among healthcare personnel are not viewed as unusual, but rather as a common reality. This normalization of excess weight can hinder health promotion efforts within hospitals, as healthcare professionals may feel less empowered or less credible when advising patients about weight control or healthy living while struggling with similar issues themselves^{2, 4, 17}.

These rising trends require urgent attention, not only for the well-being of the nursing staff but also for the sustainability of healthcare systems. Addressing the structural, cultural, and occupational factors that contribute to obesity among nurses is essential for improving health outcomes for workers and the patients they care for^{8, 15, 18}.

II. WORK-RELATED FACTORS ASSOCIATED WITH OVERWEIGHT AND OBESITY IN NURSING

One of the most significant occupational risk factors contributing to the increasing prevalence of overweight and obesity among nursing staff is the nature of their work schedules. Extended working hours, rotating shifts, and double shifts are common in the nursing profession and have been repeatedly associated with negative health outcomes. These irregular and prolonged work patterns disrupt circadian rhythms, sleep cycles, and eating behaviors, making it difficult for nurses to maintain healthy routines. Consequently, such schedules often lead to metabolic imbalances and increased susceptibility to weight gain^{2, 3, 6}.

Rotating shifts, in particular, alter sleep patterns and reduce total rest time, which can have direct effects on hormone regulation related to appetite, such as leptin and ghrelin. Nurses working night shifts tend to consume more high-calorie foods, often relying on fast food or vending machine snacks due to limited access to healthy options during overnight hours. Additionally, night and rotating shift work have been associated with higher levels of occupational stress, which contributes to emotional eating and a sedentary lifestyle during non-working hours^{4, 10, 13}.

Double shifts, often resulting from staff shortages or voluntary overtime, impose an additional burden on the physical and mental health of nurses. These long working periods significantly limit the time available for physical activity, food preparation, and adequate rest. In many cases, nurses report skipping meals, eating late at night, or consuming large quantities of food in short periods—all of which are associated with increased fat accumulation. Furthermore, accumulated fatigue from long shifts impairs decision-making and weakens motivation for healthy behavior changes, exacerbating the risk of overweight and obesity^{1, 11, 17}.

This work-related strain is not only personal but also systemic. Institutions that rely heavily on extended and rotating shifts often lack wellness policies or structured health promotion programs for their staff. While the healthcare system demands uninterrupted patient care, it seldom addresses the impact of exhausting work schedules on the caregivers' own health. Therefore, promoting nurse well-being must include a critical revision of shift structures and the implementation of supportive measures to reduce their negative health effects^{5, 9, 15}.

Obesogenic environments within healthcare institutions significantly contribute to the prevalence of overweight and obesity among nursing personnel. These settings are characterized by limited availability of nutritious food options and minimal opportunities for physical activity during work hours. Many hospitals and clinics lack structured health promotion programs or designated spaces for exercise, making it difficult for nurses to incorporate physical activity into their routines. Furthermore, vending machines and cafeterias in these workplaces often offer high-calorie,

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processed foods, while healthier choices remain scarce or expensive, thereby encouraging poor dietary habits among staff ^{2, 4, 6}.

Long and demanding shifts further complicate access to healthy meals. Nurses frequently have short or irregular breaks, forcing them to eat quickly and rely on convenient, yet unhealthy, food sources. These time constraints discourage proper meal planning and make it nearly impossible to maintain a balanced diet. The combination of high workload, limited meal options, and lack of facilities to store or prepare nutritious meals reinforces behaviors that promote weight gain. Additionally, stress and emotional exhaustion resulting from the work environment often lead to emotional eating and a reliance on energy-dense comfort foods ^{1, 3, 10}.

Physical inactivity is another factor deeply embedded in the obesogenic nature of healthcare workplaces. Nurses often spend long hours on their feet but perform repetitive tasks that do not substitute structured physical exercise. Most institutions do not provide access to gym facilities or wellness programs tailored to healthcare workers' needs. Moreover, the design of healthcare settings may discourage movement—such as having break rooms far from workstations or no access to outdoor areas—limiting the chances for spontaneous physical activity. This sedentary occupational culture perpetuates a cycle that favors weight accumulation and poor health outcomes ^{5, 8, 12}.

Addressing the obesogenic aspects of the work environment requires institutional change. Healthcare organizations should prioritize staff wellness by offering healthier food choices, modifying cafeteria menus, and making nutritious meals more accessible. Additionally, promoting short exercise breaks, installing on-site fitness areas, or facilitating partnerships with nearby gyms could significantly improve nurses' health outcomes. Creating supportive environments is a fundamental step toward reducing overweight and obesity among nursing staff and enhancing their overall well-being ^{7, 9, 14}.

High workloads and organizational stress have become major contributors to unhealthy behaviors among nursing staff, which in turn, increase the prevalence of overweight and obesity in this population. Nurses often face extended shifts, night duties, staff shortages, and emotionally demanding patient care. These occupational stressors create chronic fatigue and mental exhaustion, prompting many to seek quick sources of comfort, including high-calorie food and sedentary habits during rest periods ^{3, 5, 15}.

The demanding nature of nursing does not only impact physical exertion but also leads to emotional strain. Several studies have shown that stress, anxiety, and time pressure reduce the motivation of nurses to engage in regular physical activity, and instead promote overeating or consumption of unhealthy snacks as coping strategies. Over time, this coping mechanism fosters weight gain and elevates the risk of obesity-related health complications ^{3, 12, 18}.

Institutional factors also play a significant role. Lack of adequate breaks, insufficient access to healthy food options in hospital cafeterias, and the absence of wellness programs contribute to the normalization of unhealthy routines. Furthermore, organizational cultures that prioritize performance over well-being exacerbate stress levels, leaving little room for self-care or preventive health behaviors ^{5, 6, 10}.

Additionally, shift work has been strongly associated with metabolic disturbances. Disruption of circadian rhythms affects hormonal balance, increases cravings for sugary and fatty foods, and reduces metabolic efficiency. This physiological alteration, combined with occupational pressure, sets a foundation for unhealthy coping responses and long-term weight management difficulties among nurses ^{4, 15, 18}.

III. OCCUPATIONAL STRESS AND ITS LINK TO WEIGHT GAIN

Chronic stress experienced by nursing professionals leads to a persistent activation of the hypothalamic-pituitary-adrenal (HPA) axis, resulting in increased secretion of cortisol—a hormone that plays a central role in the body's stress response. While cortisol is essential in acute stress situations, its prolonged elevation due to occupational stress contributes significantly to metabolic dysfunction. Nurses working in high-pressure environments often experience this dysregulation, which is directly linked to increased fat accumulation, particularly in the abdominal area, and the development of obesity ^{4, 15, 18}.

Elevated cortisol levels, as a result of continuous psychosocial stressors such as understaffing, emotional labor, and long working hours, have been associated with increased appetite and preference for calorie-dense foods. This neuroendocrine imbalance fosters behaviors like emotional eating and reduces the drive for physical activity, both of which play a pivotal role in weight gain among nurses. These physiological effects underscore the connection between stress, hormonal dysregulation, and unhealthy coping mechanisms that culminate in overweight and obesity ^{3, 12, 18}.

The literature highlights that the HPA axis, when overstimulated, affects insulin sensitivity and alters glucose metabolism, which further promotes adiposity. Among nurses, who often lack regular sleep schedules and face rotating shifts, circadian disruption exacerbates this condition. Sleep deprivation and irregular hours intensify cortisol release, making it harder for the body to return to homeostasis. This cycle of stress and hormonal response creates a biological environment conducive to weight retention and metabolic syndrome ^{4, 10, 18}.

The high emotional stress experienced by nurses—often due to the intense emotional demands of patient care, long hours, and frequent exposure to suffering—can lead to the development of disordered eating behaviors. Emotional eating and binge eating are common coping mechanisms used to manage anxiety and fatigue. These behaviors serve as short-term relief but have long-term health consequences, including substantial weight gain. Emotional dysregulation is

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intensified by organizational pressures, making food a quick escape from psychological discomfort^{2, 3, 15}.

Burnout syndrome, frequently observed among nurses, exacerbates this problem. Characterized by emotional exhaustion, depersonalization, and a diminished sense of personal achievement, burnout not only affects mental well-being but also promotes harmful lifestyle choices. Nurses suffering from burnout are more likely to eat impulsively, skip meals, or consume high-fat and high-sugar foods. These eating habits, combined with lack of physical activity and poor sleep quality, create a vicious cycle that fosters obesity and its related comorbidities^{3, 9, 18}.

The association between burnout and physical health deterioration is well-documented in the nursing population. Stress-related hormonal changes and reduced resilience weaken immune responses and increase the risk of metabolic disorders. Additionally, continuous exposure to high-stress environments without proper psychological support reduces self-care behaviors. This includes neglecting healthy eating habits, which reinforces patterns of binge eating and emotional overconsumption. Consequently, burnout is not only a psychological challenge but also a major contributing factor to the rising rates of overweight and obesity among nursing staff^{2, 12, 16}.

IV. SLEEP DISORDERS AND CIRCADIAN DYSREGULATION

Night shifts are a common reality for nursing professionals, yet they pose significant challenges to the body's natural circadian rhythms. The disruption caused by nocturnal work affects hormonal regulation, particularly melatonin and cortisol secretion, which are essential in regulating sleep-wake cycles. Nurses working at night often experience desynchronization between their internal biological clocks and the external environment, leading to chronic fatigue and poor sleep quality. This misalignment not only compromises alertness and cognitive performance but also contributes to long-term health consequences, including metabolic disturbances and weight gain. Studies have consistently shown that circadian rhythm disruption is a major risk factor for developing obesity due to its effect on energy expenditure and appetite regulation^{4, 5, 10}.

Insomnia is one of the most prevalent sleep disorders among nurses who work rotating or night shifts. Sleep deprivation resulting from shift work affects insulin sensitivity and glucose metabolism, increasing the risk of developing type 2 diabetes and weight gain. When the body is unable to maintain stable glucose levels due to poor sleep, it responds with hormonal imbalances that promote fat storage and impair appetite regulation. This scenario is exacerbated by the consumption of high-calorie foods during night hours and limited opportunities for physical activity. Furthermore, poor sleep contributes to elevated stress levels, which in turn can drive emotional eating and sedentary behavior, deepening the cycle of obesity in nursing professionals^{12, 15, 18}.

Moreover, nurses working during the night often report experiencing persistent fatigue and psychological stress, factors that are closely linked to poor dietary choices and reduced engagement in healthy behaviors. Chronic sleep disruption has been associated with increased levels of ghrelin (a hormone that stimulates appetite) and reduced levels of leptin (a hormone that induces satiety), which together encourage excessive food intake. This hormonal imbalance leads to increased body mass index (BMI) and a higher prevalence of overweight and obesity among nursing staff, particularly those assigned to continuous night shifts or rotating schedules. The consequences of insomnia are thus not limited to sleep-related issues but extend to profound metabolic and psychological outcomes^{5, 12, 15}.

Chronic sleep deprivation, commonly experienced by nurses working night shifts, leads to significant hormonal imbalances that directly contribute to weight gain. Among the most critical hormonal changes are fluctuations in leptin and ghrelin levels, which regulate hunger and satiety. Leptin, a hormone produced by adipose tissue, signals the brain when the body has enough energy stores and suppresses appetite. Conversely, ghrelin, secreted primarily in the stomach, stimulates hunger. When sleep is insufficient, leptin levels drop while ghrelin levels increase, leading to heightened appetite and increased caloric intake, even in the absence of true energy deficits^{3, 4}.

This hormonal disruption caused by poor sleep hygiene pushes nurses into a physiological state that favors fat accumulation. The decrease in leptin reduces the feeling of fullness after eating, while the elevation in ghrelin enhances cravings, especially for high-carbohydrate and high-fat foods. Over time, this imbalance promotes a positive energy balance and ultimately leads to weight gain. Several studies involving healthcare workers, particularly nurses, show that those with chronic sleep debt tend to have a higher body mass index (BMI) and an increased prevalence of obesity compared to their well-rested counterparts^{15, 18}.

Moreover, the repeated cycle of sleep restriction and hormonal disturbance creates a feedback loop. As weight increases, sleep quality may further deteriorate due to conditions like obstructive sleep apnea or increased fatigue, exacerbating the metabolic imbalance. Nurses often struggle to maintain regular eating schedules and tend to consume meals at irregular times, which can further disrupt leptin and ghrelin secretion patterns. These hormonal shifts do not occur in isolation but are closely tied to the stress and erratic schedules inherent in the nursing profession, making it a high-risk occupation for developing obesity linked to hormonal dysregulation^{4, 18}.

V. EATING HABITS IN THE HOSPITAL ENVIRONMENT

The hospital environment poses significant challenges for maintaining healthy eating habits among nursing staff. Nurses working long and demanding shifts, especially at night, often have limited access to nutritious meals, as hospital cafeterias may operate only during daytime hours.

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This lack of availability forces many nurses to rely on what's most accessible during their breaks—often snacks from vending machines, sugary beverages, or prepackaged meals with low nutritional value. Even when hospital food services are available, the options offered may not align with a balanced diet, failing to meet the nutritional needs of professionals under high physical and emotional stress ^{2, 5, 9}.

Another important factor is the irregularity of meal schedules due to unpredictable work demands. Nurses frequently experience interruptions during their shifts—emergencies, patient care, or administrative tasks—that delay or even prevent proper meal times. Unlike office jobs, the hospital setting does not allow fixed breaks, and this results in nurses skipping meals or eating at inconsistent hours. This irregular eating pattern disrupts metabolism, alters glucose regulation, and contributes to the accumulation of body fat over time. Studies show that this type of erratic feeding behavior, combined with night shifts, significantly increases the risk of overweight and obesity ^{3, 14}.

In the absence of structured meal times and access to proper food, many nurses develop a dependency on fast food and vending machine snacks as a convenient alternative. These highly processed options are typically rich in sugars, sodium, and unhealthy fats, contributing to poor dietary quality. Consuming such foods regularly not only increases caloric intake but also promotes cravings and poor satiety control, leading to excessive snacking throughout the shift. The convenience of junk food in high-pressure environments like hospitals perpetuates this cycle, especially when healthier alternatives are either unavailable or require more time and effort to obtain ^{15, 17}.

The cumulative effect of these poor eating habits is not only visible in the increasing prevalence of overweight and obesity among nurses but also in the long-term development of chronic diseases such as type 2 diabetes, hypertension, and metabolic syndrome. In the healthcare setting, where nurses are expected to model healthy behaviors, this contradiction becomes even more problematic. The institutional environment, instead of supporting well-being, often contributes to the deterioration of nurses' physical health through inadequate food infrastructure and inflexible schedules ^{5, 9, 12}.

VI. PHYSICAL INACTIVITY AND SEDENTARISM IN NURSING

While nursing is often perceived as a physically demanding job due to the need for constant movement, patient lifting, and long hours on foot, this occupation paradoxically presents a high prevalence of physical inactivity and sedentary lifestyle patterns. This contradiction stems from the nature of the activity involved: although nurses are frequently in motion during their shifts, this movement is fragmented, task-specific, and lacking the sustained intensity and duration required to yield the metabolic and cardiovascular benefits associated with structured physical exercise ^{14, 17}.

One of the most significant barriers to physical activity among nurses is chronic fatigue. Extended shifts, night rotations, understaffing, and emotionally draining interactions with patients leave nurses exhausted both mentally and physically, making them less inclined to engage in physical activity during their free time. After a 12-hour shift, the priority for many is rest and recovery, rather than exercise, no matter how brief or moderate the activity might be ^{2, 3, 5}. This fatigue becomes even more pronounced in nurses working consecutive shifts or rotating between day and night duties, which disrupts circadian rhythms and reduces sleep quality, further compounding the lack of energy for physical movement ^{3, 5, 12}.

Additionally, the distinction between occupational activity and intentional exercise is often misunderstood. While nurses may spend hours walking hospital corridors or transferring patients, these movements are inconsistent and reactive, not structured or progressive. They lack the continuity and intensity of aerobic or strength-based exercise routines, which are essential for weight management and prevention of obesity-related complications. The false perception that physical demands at work are equivalent to exercise leads to complacency, discouraging intentional workouts and perpetuating sedentarism ^{5, 9, 14}.

The work environment itself rarely facilitates or promotes physical activity. Hospitals and clinics often lack on-site gyms, wellness spaces, or even locker rooms suitable for changing into workout attire. Moreover, the unpredictable nature of healthcare work — including emergencies, overtime, and rigid schedules — makes it difficult for nurses to plan consistent exercise routines. The lack of institutional support or wellness programs aimed at encouraging physical activity among staff further contributes to the problem ^{9, 12}.

On a psychological level, motivation and mental well-being play a crucial role. High stress levels, anxiety, and emotional burnout — which are common among nursing professionals — reduce the inclination to participate in physical activity. Exercise, though beneficial for mental health, is often deprioritized in favor of rest, escapism, or passive leisure like watching TV or sleeping. This shift away from active habits is gradual but reinforces a sedentary pattern, especially when nurses do not receive guidance or incentives to break the cycle ^{5, 9, 14}.

Sociocultural factors also shape physical activity behaviors. In some contexts, there may be gendered expectations, such as women assuming household and caregiving duties after work, limiting the time available for self-care, including exercise. For others, economic limitations, unsafe neighborhoods, or lack of access to transportation or gyms may hinder the ability to engage in physical activity during off-hours. These environmental and social challenges add to the structural difficulties already present in the healthcare system ^{14, 15}.

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In the long term, this persistent lack of structured physical activity contributes not only to weight gain and obesity, but also to a greater risk of hypertension, diabetes, cardiovascular disease, and musculoskeletal injuries. Nurses who lead sedentary lives may also suffer reduced endurance, flexibility, and muscular strength, impairing their ability to perform job-related tasks efficiently. Ironically, this compromises the quality of care they provide and increases the likelihood of work-related injuries, absenteeism, and early burnout^{3,5}.

Ultimately, combating sedentarism in the nursing profession requires institutional, cultural, and individual-level changes. Promoting flexible scheduling, providing access to fitness resources, integrating brief movement breaks during shifts, and fostering a culture of wellness within healthcare environments are critical strategies. Nurses deserve not only to advocate for their patients' health but also to have the resources and support to prioritize their own^{12,14}.

VII. GENDER, SOCIAL ROLES, AND UNPAID WORKLOAD

One of the most critical, yet often overlooked, contributors to overweight and obesity among nursing professionals is the intersection of gender, traditional social roles, and the unpaid workload borne disproportionately by female staff. Despite their vital role in healthcare systems, women in nursing face a unique and compounded set of stressors that extend far beyond the boundaries of their professional duties. This convergence of personal and professional responsibilities plays a substantial role in limiting opportunities for physical activity, healthy eating, and adequate rest — all of which are vital for maintaining a healthy weight and overall well-being^{3,5,9}.

Statistically, female nurses show a significantly higher prevalence of overweight and obesity compared to their male counterparts, a trend that mirrors patterns seen in the general population but is intensified within the nursing profession. This disparity can be traced not only to biological differences but also to deeply rooted gender norms and expectations. Many female nurses, after completing long and physically demanding hospital shifts, are expected to fulfill unpaid domestic roles — including childcare, cooking, cleaning, and elder care — effectively extending their workday and leaving minimal time for self-care, exercise, or mental recovery^{5,9,12}.

This dual workload, often described as the “second shift,” is mentally and physically taxing. While their male peers may have more opportunities to rest, exercise, or engage in recreational activities after work, women are frequently burdened with an unacknowledged continuation of labor in the domestic sphere. Over time, this dynamic contributes to chronic stress, fatigue, emotional exhaustion, and ultimately, a greater risk of developing obesity and associated metabolic disorders^{12,14,17}.

The cultural expectations surrounding femininity and caregiving amplify this challenge. In many societies, women are socialized from an early age to prioritize the needs of others over their own, often internalizing guilt for allocating time to personal well-being or leisure. For female nurses, this

mindset translates into neglecting their health by skipping meals, choosing convenience foods, sacrificing sleep, or abandoning physical activity routines — not due to lack of knowledge, but due to structural and emotional barriers that make self-care feel unattainable or even selfish^{3,12,15}.

Moreover, sedentary behaviors are reinforced through both social and environmental structures. For example, after fulfilling their family obligations, many nurses spend the remainder of their limited free time in passive activities such as watching television, resting, or using mobile devices — all of which are understandable but contribute to a lifestyle lacking in movement and energy expenditure. Without institutional support, community resources, or changes in cultural attitudes toward shared domestic responsibility, these patterns are unlikely to change^{5,12,17}.

In many low- and middle-income settings, the situation is exacerbated by limited access to supportive infrastructures, such as affordable childcare, safe environments for outdoor activity, or accessible wellness programs. This not only perpetuates health inequalities but also disproportionately affects women in lower socioeconomic brackets, who must juggle long hospital shifts with family care duties in environments with few options for relief or support. The cumulative impact of these stressors — physical, emotional, and logistical — becomes a powerful force driving weight gain, sedentarism, and poor health outcomes^{2,12,14}.

This gendered distribution of workload and caregiving responsibilities not only impacts physical health, but also mental well-being. Emotional exhaustion and burnout are closely linked to weight gain and unhealthy coping mechanisms such as emotional eating, increased consumption of sugary or fatty foods, and disrupted sleep patterns — all of which are interrelated with obesity risk. Thus, the relationship between gender, work roles, and obesity is not merely circumstantial, but deeply systemic and multifactorial^{3,5,14}.

Addressing this issue requires a multi-pronged approach: workplace policies that recognize and alleviate the unique burden carried by female nurses, culturally competent health promotion strategies that emphasize equitable distribution of unpaid labor, and societal changes that promote shared responsibility within households. Only through such systemic shifts can women in nursing be empowered to prioritize their health without sacrificing their professional or familial roles^{9,12,17}.

VIII. PHYSICAL AND PSYCHOLOGICAL CONSEQUENCES OF OBESITY IN HEALTH PERSONNEL

Obesity among healthcare personnel, particularly nursing staff, is not merely a matter of appearance or personal health—it is a critical issue that directly affects professional performance and overall quality of life. The physical consequences of excess weight are well-documented and include a higher risk of developing chronic conditions such as hypertension, type 2 diabetes, and dyslipidemia. These metabolic disorders not only compromise the general health

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of nurses but also increase absenteeism, reduce energy levels, and limit physical mobility, making it difficult to meet the demanding nature of healthcare work ^{6, 7, 15}.

Beyond the physical complications, obesity can severely impact psychological well-being. Nurses suffering from obesity often experience low self-esteem, dissatisfaction with body image, and a heightened vulnerability to mental health issues such as anxiety and depression. These factors contribute to emotional exhaustion and burnout, particularly in environments that already exert significant stress on staff. Moreover, the stigmatization of obesity within both society and the healthcare profession can lead to feelings of inadequacy and isolation, further deepening psychological distress ^{13, 18, 19}.

The cumulative effect of these physical and psychological burdens is a significant decline in quality of life. Obese nursing personnel may struggle with performing basic job functions, participating in continuing education, or engaging in teamwork effectively due to fatigue, physical limitations, or emotional withdrawal. This not only affects their personal and professional satisfaction but can also compromise patient care outcomes. Therefore, addressing obesity among nurses is not only a matter of individual health but also an institutional responsibility to foster a supportive, health-conscious workplace ^{1, 4, 5}.

IX. IMPACT OF OBESITY ON JOB PERFORMANCE AND PATIENT CARE

Obesity in nursing personnel is not only a personal health concern but also a factor that significantly affects workplace performance and patient outcomes. Excess body weight has been associated with increased physical strain, leading to higher ergonomic and biomechanical risks. These risks are particularly important in nursing, a profession characterized by repetitive movements, manual handling of patients, and prolonged periods of standing or walking. The additional weight increases stress on joints and muscles, heightening the probability of work-related injuries such as musculoskeletal disorders, especially in the lower back and knees ^{5, 6}.

Furthermore, functional limitations arising from obesity—such as reduced mobility, decreased endurance, and slower reaction times—can severely hinder the efficiency of nursing tasks. Obese nurses may experience fatigue more rapidly, find it more challenging to assist with patient transfers, and may even struggle with basic duties that require agility and strength. These limitations can contribute to increased absenteeism and decreased job satisfaction, which ultimately compromise the productivity and functionality of healthcare teams ^{12, 13}.

The consequences of these impairments go beyond the nurses themselves and may negatively impact patient care. A reduced ability to respond swiftly in emergencies, delays in performing essential procedures, and physical barriers in providing thorough care can endanger patient safety. Moreover, patients may perceive a lack of professionalism or empathy when attended by visibly unhealthy staff, affecting

the therapeutic relationship. These perceptions, along with the physical constraints imposed by obesity, can reduce the overall quality of healthcare services ⁸.

X. WEIGHT STIGMA WITHIN THE HEALTHCARE SYSTEM

Weight stigma is a persistent issue within healthcare environments, affecting not only patients but also healthcare providers, particularly nurses. Overweight and obese nursing staff are frequently subjected to prejudice and discriminatory attitudes from colleagues, supervisors, and even patients. These biases often manifest as underestimations of their professional competence, assumptions about poor lifestyle choices, or lack of discipline, all of which foster a hostile work environment and undermine their authority and credibility within the clinical setting ^{2, 4}.

A particularly harmful consequence of this stigma is the internalization of negative stereotypes. Nurses who experience repeated exposure to weight-related discrimination may begin to adopt these societal judgments as part of their self-perception. This self-stigmatization fosters feelings of shame, low self-esteem, and guilt, which not only diminish personal well-being but also impair professional performance. These nurses may avoid leadership roles or speaking up in clinical discussions, fearing judgment or ridicule due to their physical appearance ^{2, 4, 8}.

The emotional toll of weight stigma contributes to higher levels of stress, depression, and burnout among nursing staff. Over time, this psychological burden can lead to reduced job satisfaction, decreased motivation, and increased turnover rates. The fear of being judged based on body size rather than competence discourages long-term commitment to the profession and hinders efforts to foster inclusive and supportive healthcare teams. Addressing weight stigma is thus not only an ethical imperative but a practical necessity for improving staff retention and workplace harmony ^{2, 4, 7}.

XI. STRATEGIES AND INTERVENTIONS TO PREVENT AND MANAGE OBESITY IN NURSING STAFF

One of the most effective approaches to addressing obesity among nursing personnel involves the establishment of institutional wellness programs that prioritize physical and mental well-being. These initiatives, when properly implemented, promote healthier lifestyle choices by encouraging regular physical activity, balanced nutrition, and stress reduction techniques. Institutions that invest in workplace wellness strategies have observed improvements in overall staff health and reduced absenteeism due to obesity-related conditions ³.

In addition to general wellness programs, multidisciplinary interventions have proven essential for achieving long-term success in weight management. These interventions typically include collaboration between nutritionists, psychologists, and fitness professionals to offer personalized support tailored to each nurse's needs. Such a holistic approach not only targets weight reduction but also addresses the underlying psychological and behavioral

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factors that contribute to obesity. Studies have shown that these coordinated efforts significantly increase the likelihood of sustainable lifestyle changes among healthcare workers^{5, 6}.

Hospitals are increasingly recognizing the importance of fostering supportive work environments through policy development. Recommendations include revising cafeteria food options, implementing scheduled activity breaks, and offering confidential counseling services to address stress and emotional eating. By embedding health promotion into the organizational culture, institutions can create a workplace that empowers nurses to take care of their health without fear of stigma or discrimination. These structural changes contribute to both the prevention and effective management of obesity among nursing staff¹².

DISCUSSION

Overweight and obesity among nursing staff represent a growing occupational and public health concern with multifactorial roots and significant implications. Understanding the conceptual framework is fundamental to recognizing the magnitude of the problem. The current clinical definition provided by the World Health Organization, based on body mass index (BMI), is useful for identifying at-risk individuals. However, it may not capture all aspects of health deterioration, particularly in active healthcare workers whose weight may not always reflect body composition or functional status.

Globally, studies indicate an alarming increase in overweight and obesity rates among nurses, especially in countries with developed healthcare systems. In regions like North America and Latin America, the figures are particularly troubling. Nurses working in public hospitals appear to be more vulnerable due to less favorable working conditions, higher patient loads, and lower access to institutional wellness programs compared to their counterparts in private settings. These disparities emphasize the need to contextualize interventions according to regional and institutional dynamics.

The nature of nursing work itself contributes to this health issue. Long hours, shift rotations, and double shifts disrupt biological rhythms and reduce opportunities for physical activity and healthy eating. The hospital environment is often obesogenic, lacking access to nutritious food and spaces conducive to physical activity. The stress caused by high care demands and organizational pressures also leads many nurses to adopt maladaptive coping strategies such as emotional eating, which further exacerbates weight gain.

Moreover, occupational stress has been directly linked to hormonal changes that favor fat accumulation. Chronic activation of the hypothalamic-pituitary-adrenal (HPA) axis increases cortisol levels, contributing to metabolic dysregulation. Burnout syndrome, frequently reported among nurses, has also been associated with weight gain and

psychological distress, creating a feedback loop that is difficult to break without institutional support.

Night shifts and disrupted sleep patterns further compound the problem. Nurses frequently suffer from circadian rhythm disturbances, which interfere with glucose metabolism and appetite regulation. Hormonal imbalances involving leptin and ghrelin, caused by chronic sleep deprivation, may increase cravings and reduce satiety, promoting weight gain even in the absence of overeating.

The dietary habits of nurses are heavily influenced by their work environment. Unpredictable schedules and emergency responsibilities often lead to skipped meals or reliance on vending machines and fast food. These habits are reinforced over time, particularly in settings where there is no access to a cafeteria with healthy options or time allocated for proper meals. Nutritional neglect becomes normalized in nursing culture, further complicating efforts at intervention.

Despite the physically demanding nature of nursing, structured physical activity is notably lacking among nurses. Many report fatigue, lack of time, inadequate facilities, or low motivation as barriers to regular exercise. While incidental movement at work exists, it does not provide the same benefits as planned physical activity. Consequently, many nurses become increasingly sedentary over time, contributing to the risk of obesity-related conditions.

Gender and social dynamics also play a critical role. A significant proportion of the nursing workforce is female, and many of these women face a dual burden of professional obligations and unpaid domestic labor. Cultural expectations often deprioritize women's self-care and physical activity in favor of caregiving roles, limiting their ability to adopt healthier lifestyles.

The consequences of obesity in this population are both physical and psychological. Nurses affected by obesity are more likely to suffer from comorbid conditions such as hypertension, diabetes, and depression. These health issues can compromise their ability to perform demanding clinical tasks and reduce their quality of life. Furthermore, feelings of shame and low self-esteem are common, leading to a diminished sense of professional efficacy.

Obesity also poses a challenge to job performance and patient care. Nurses with limited mobility or endurance may struggle with tasks that require physical strength, increasing the risk of work-related injuries. This can affect patient safety and reduce the overall quality of care. Ergonomic strain, fatigue, and reduced responsiveness may ultimately compromise clinical outcomes.

Another pressing issue is weight stigma within healthcare systems. Nurses with overweight or obesity frequently encounter bias and discrimination from colleagues and even patients. These negative attitudes can lead to internalized shame and self-stigmatization, affecting mental health, job satisfaction, and staff retention. The paradox of being health professionals while facing stigma for personal health struggles can create emotional dissonance and isolation.

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In response to this multifaceted problem, evidence-based strategies have emerged. Workplace wellness programs, when embedded into the institutional culture, have shown promise in promoting healthy behaviors. Multidisciplinary interventions that combine nutritional counseling, psychological support, and structured physical activity are particularly effective. Moreover, hospital policies must evolve to foster supportive environments—offering nutritious meals, mental health resources, and opportunities for movement during shifts.

Addressing obesity in nursing staff is not merely a matter of personal responsibility—it is a systemic issue that requires structural, cultural, and psychological interventions. A comprehensive approach that recognizes the complexity of nursing work and the contextual barriers nurses face will be key to reversing this trend and safeguarding both staff well-being and patient care.

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