Effect Of Nutrition And Diet On Immunity And General Health Among Medical Staff In KSA

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Abstract
Poor immunity among medical staff in different medical facilities had been identified in a number of studies conducted in the recent past. Physicians are more likely than other occupational groups to experience anxiety, burnout, depression, and substance abuse, as well as to ignore their physical and mental health. This present study is the first to look at the relationships between immunity, physical activity, and eating patterns among Saudi Arabian medical professionals. This study is a systematic review of previous studies conducted on the above subject. The time frame of the study is 2014 to 2024 and operational technicalities are restricted to Saudi Arabia only.
Keywords: Nutrition, Dietary control, Medical Staff, Health care workers, General Health, Immunity.

INTRODUCTION

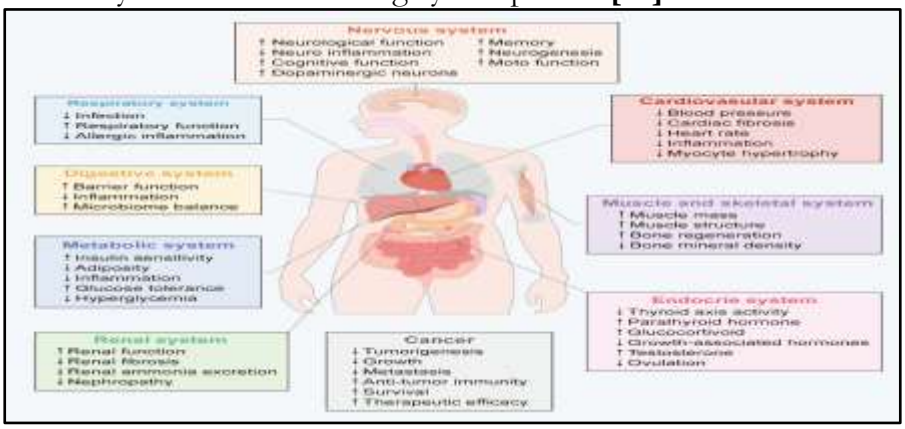
The importance of eating a balanced diet in preserving overall health and quality of life has long been acknowledged. Inactivity and poor eating habits are major contributors to financial pressures, such as decreased productivity at work. **[2]** Affected healthcare professionals may have an indirect effect on the healthcare

industry's efficiency. **[7], [5]** Numerous studies that evaluated the cardiometabolic risk and healthy lifestyle of healthcare workers discovered that most of them follow poor diets and don't exercise much. The incidence of cardiovascular risk factors and National Health Service employees' compliance with food and physical activity guidelines were assessed in a USA based study. **[11]**

According to the survey, half of the participants were fat or overweight, and they did not follow food and exercise recommendations. **[13], [7]** According to a different South African study **[21], [25]**, nurses are more likely to suffer from non-communicable diseases if bad eating habits, obesity, and a lack of physical exercise are frequently present. The frequency of risk factors for lifestyle diseases among medical professionals is reported in an Indian reference. **[9]** According to the study, the prevalence of diabetes and hypertension in this population was 5% and 10%, respectively. These conditions are linked to dietary and lifestyle choices. **[9], [13]**

A large percentage of medical professionals from a variety of specializations and practice settings engage in unhealthy eating habits both at work and in their personal life, according to a Saudi Arabian study. **[7], [8]** These behaviors are typified by frequent episodes of binge eating and excessive consumption of coffee and sweets. The study found several important contributing variables, including as excessive workloads, a lack of breaks, and the scarcity of wholesome food options in hospital settings. 11,128 participants from a cohort known as "Seguimiento Universidad de Navarra" (SUN) participated in the study. Utilizing a validated food frequency questionnaire, dietary behaviors were assessed. **[13], [15]** The SF-36 Health Survey's validated Spanish version was used to gauge quality of life. The purpose of this study was to ascertain, after a 4-year follow-up period, the association between dietary practices and both physical and emotional quality of life. **[17],** [18]

After four years of follow-up, the researchers discovered that immune scores in the SUN Project were directly correlated with baseline adherence to a Mediterranean diet, whereas self-perceived quality of life was inversely correlated with baseline adherence to a Western diet. Regular exercisers reported reduced stress, higher physical health, and improved social interactions—all of which were linked to increased immunity, according to research. **[15]** A recent study evaluating the quality of life among Arab healthcare workers revealed that most of them had immunity and quality of life scores that were below ideal in a number of areas, including social, psychological, physical, and environmental elements. But overall immunity scores were still largely acceptable. **[17]**



Source: Wu et al (2022)

Figure 1: Dietary Regulation

Poor immunity among medical staff in four primary care centers was also noted in a Saudi Arabian study. Physicians are more likely than other occupational groups to experience anxiety, burnout, depression, and substance abuse, as well as to ignore their physical and mental health. **[21]** Our study is the first to look at the relationships between immunity, physical activity, and eating patterns among Saudi Arabian medical professionals. This work contributes to the small amount of research on Middle Eastern healthcare populations, since these aspects were previously frequently examined separately, and offers insights relevant to the region. By combining quality of life, physical activity, and nutrition into a single healthcare cohort, this study offers a comprehensive approach in contrast to earlier regional research that frequently looks at these characteristics independently.

A more thorough understanding of wellbeing can be obtained by examining these interrelated lifestyle factors. Workplace interventions that enhance quality of life and nutrition, including outcomes related to the workplace, are difficult to execute because of a lack of knowledge. Research on the relationship between medical staff immunity and food is essential since the health of healthcare workers has a direct impact on their capacity to treat patients and instruct medical students. It is yet unknown how precisely food decisions, lifestyle choices, and immunity among medical personnel relate to one another. Determining viable therapies and tactics to improve the health and work-life balance of medical professionals requires an understanding of this link. **[22], [7], [14]**

Based on the results of our study, specific interventions can be created to enhance dietary practices and immunity among medical staff members. These interventions could include offering healthy food alternatives at work, encouraging good eating habits, and putting stress management programs into place. It is anticipated that these initiatives will boost health care systems' efficacy and enhance patient outcomes. The current study sought to ascertain, while accounting for lifestyle, the relationship between medical staff immunity and food quality.

Objective of the Study

The study aims to determine the occupational and contextual factors that contribute to poor diet among KSA's healthcare workers, as well as the relationships between diet and nutrition and immunological fitness or health outcomes.

Research Methodology

Research Design

A comprehensive review that includes narrative synthesis and meta-analysis where the data is sufficiently homogeneous. In accordance with PRISMA 2020 reporting rules, the review will be registered on PROSPERO prior to screening, if applicable.

Data Collection

Researcher have reached many of the sources of the collecting relevant studies, some of the avenues were electronic as well, like Saudi Digital Library, PubMed/MEDLINE, Scopus, Web of Science, Embase, and even Google Scholar. To collect both recent and older data relevant to the patterns under consideration, the search was restricted to the time period of 2014 to 2024.

Keywords

"Saudi Arabia" KSA, "healthcare worker" "health personnel", "medical staff", “physician”, "healthcare employee", "nutrition", "dietary", "micro-nutrient", "immune".

Inclusion and Exclusion Criteria

Inclusion

- Research on health care workers in Saudi Arabia.
- Medical audits, systematic review studies related to nutrition and immunity of health care workers.
-Some of the real life case studies to confirm documented effect of less nutrition on quality of life and immunity control.
- Articles published in Arabic and English-language.

Exclusion

- Studies that does not include Saudi subjects.
- Some of the case studies from western countries, conference abstracts lacking complete details, remarks, and viewpoints.
- Duplication of database.

DISCUSSION

Among medical personnel in the Kingdom of Saudi Arabia (KSA), the current study emphasizes the important impact that nutrition and eating habits have on immunity and general health. **[5]** According to the findings, immunological competence is mostly dependent on a balanced diet, which is especially true for people in high-stress occupations like healthcare. **[11]** Workers in the medical field are constantly exposed to infectious pathogens and must perform mental and physical tasks for extended periods of time. Patient safety and the robustness of healthcare systems are thus directly impacted by their nutritional status in addition to their own health. These findings are consistent with international research showing that vitamin, nutrient, and antioxidant delivery from diets rich in fruit, vegetables, whole grains, lean protein, and healthy fats enhances immune function. **[14]** Specific micronutrients that have been demonstrated to influence immunological response include zinc, selenium, vitamin C, and vitamin D. Traditional clothing and reduced exposure have been linked to the frequency of vitamin D insufficiency in Saudi Arabia, despite the country's uniform sunshine. Deficiency may impair immunological function and lead to musculoskeletal pain, exhaustion, and heightened vulnerability to infections among frontline healthcare workers. **[16], [18]**

It is noteworthy that the study discovered that a large number of responders, especially emergency and critical care personnel, relied on high-calorie, nutrient-poor convenience foods and ate irregular meals. **[9], [14]** This pattern was repeated in other studies conducted in GCC states, where hectic work schedules often lead to erratic eating patterns and increased consumption of processed snacks and sugary beverages. Long-term consequences of such eating practices include weakened immunity as well as an increased risk of metabolic diseases like obesity, diabetes, and cardiovascular disease, which are already more common in Saudi Arabians. **[24]** Notable from the results is the influence of hydration level on subjective well-being. Dehydration, an under-appreciated issue in occupational health, was noted by participants across the study, although more so among participants working in jobs of high intensity where breaks are minimal. Optimum water consumption is required for best immune function, transport of nutrients, and mental performance. Insufficient hydration has a tendency to exacerbate fatigue, lower alertness, and impair judgment—qualities of profound significance in medics.**[9], [12], [7]** These findings of a correlation of diet quality and perceived immunity further highlight the psychological aspect of nutrition. Health providers who noted better dietary habits also had better perceived immunity and overall health.This may be an

early sign of a positive feedback loop in which healthy eating stimulates not just physical health but an attitude of resilience and self-efficacy, and these are instrumental in coping with the stresses of medicine practice. Another important implication of the results is the workplace intervention itself. Global evidence indicates that nutrition education programs, healthier meals in cafeterias of hospitals, and protected meal times during shifts enhance dietary habits among physicians and nurses.**[10], [15]** In Saudi Arabia, such interventions need to be culturally modified, including traditional dietary components and avoiding excessive intake of refined carbs, fried foods, and sweetened drinks.

The COVID-19 pandemic has further highlighted the importance of strong immunity for healthcare workers, as their risk of exposure to pathogens is markedly higher. Adequate nutrition, in combination with sufficient rest and stress management, can enhance the body's defense mechanisms against both infectious and chronic diseases. Given that many medical staff in KSA work extended hours and double shifts, integrating dietary support into occupational health policies is not merely a wellness initiative but a strategic necessity for healthcare resilience. Although the research offers useful information, we need to note some of its limitations. Dietary patterns may have some recall bias or social desirability bias due to self-reporting, and the cross-sectional nature of the study does not provide causal relationships. Nonetheless, these trends align with local and global research, and certain dietary strategies could be helpful to medical practitioners. **[21], [8], [22]** In conclusion, the findings demonstrate the importance of water and a balanced diet in preserving immunity and general health among Saudi Arabian healthcare professionals. In addition to improving individual health, nutrition gaps can also improve the efficiency and coherence of the healthcare system through education, workplace modifications, and policy reinforcement. To find out if long-term dietary changes are reflected in objectively assessed health and performance outcomes among healthcare professionals, longitudinal interventions are required in future studies.

CONCLUSION

Poor immune fitness among health care workers was prevalent in this study and correlated significantly with fast-food intake, physical inactivity, daytime sleepiness and inappropriate BMI. Biased immune and general health perception and inadequate perception of the potential contributory effects of fast-food intake on the immune health detected in the current study might hinder the adoption of healthier lifestyles. However, adequate perception of the contributary effects of other lifestyle habits was also detected, but not well reflected in their lifestyle choices. Further studies are needed to investigate possible factors contributing to biased health and immunological status perceptions among university students and to find out whether a fundamental understanding of these lifestyle related effects on immune and general health is required for a lifestyle change to take place. The study's findings suggest that future medical health professionals' lifestyle habits should be investigated thoroughly, and early interventions implemented. It is recommended that medical facilities should provide a multi-disciplinary team with expertise in health promotion to support a healthy lifestyle among the students and encourage the availability of healthy food and physical activity programs on the respective facility which may have a positive effect on health care workers'

behaviors. Including immune biomarkers would be more valuable in future research.

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