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PREVALENCE AND AWARENESS OF HYPERTENSION AMONG HEALTHCARE WORKERS IN KSA: A SYSTEMATIC REVIEW

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Abstract

Background: Hypertension remains a critical global health concern, with healthcare workers (HCWs) playing a pivotal role in its prevention and management. However, limited research has assessed the prevalence of hypertension and the level of awareness about this condition among HCWs in Saudi Arabia. This systematic review aims to synthesize existing evidence to bridge this knowledge gap and identify areas for improvement in hypertension management within healthcare settings.

Methods: A comprehensive systematic review was conducted following PRISMA guidelines to investigate the prevalence and awareness of hypertension among HCWs in Saudi Arabia. Relevant studies published in English from 2000 to the present were identified through database searches in PubMed, Embase, Scopus, Web of Science, and grey literature sources, including Google Scholar. Cross-sectional, cohort, and case-control studies, along with systematic reviews, were included. The study selection process involved independent title and abstract screening, followed by full-text review based on predefined inclusion criteria. Data were extracted systematically and analyzed qualitatively, focusing on prevalence rates, awareness levels, and associated risk factors.

Results: The initial search identified 54 studies, of which 20 full-text articles were reviewed, and one study met the inclusion criteria. Conducted in Riyadh in 1996, the study assessed 107 primary

care physicians using a 38-item survey. Findings revealed that while 91% of physicians supported mandatory hypertension screening, only one-third could define hypertension correctly. Awareness of hypertension prevalence (42%) and its major complications (57%) was limited. Furthermore, 94% of physicians routinely measured blood pressure during patient intake, but only 56% adhered to recommended screening intervals for individuals over 35 years old.

Conclusion: This review highlights significant gaps in hypertension awareness and screening practices among Saudi HCWs, underscoring the need for targeted educational initiatives and training. The findings call for updated research to assess current practices and implement strategies to enhance hypertension management in healthcare settings.

Keywords: Hypertension, Awareness, Prevalence, Healthcare Workers, Saudi Arabia

Introduction

With a total area of 2,150,000 km2 and 13 directorates (the capital being Riyadh), Saudi Arabia is home to almost 35 million people, nearly half of whom are under the age of 25. Its economy is growing at a tremendous pace, and it is quickly becoming one of the most powerful in the G20. As a result, a number of Saudis started eating differently and living healthier lives. Among all countries, Saudi Arabia ranks first in the prevalence of hypertension as a chronic public health issue [1].

Among the many consequences of hypertension include damage to the cardiovascular system, stroke, and kidney failure [2]. This modifiable health issue is second only to smoking in terms of preventable cardiovascular event mortality [3].

Being older, male, less educated, and from a poorer socioeconomic background are some of the risk factors linked to hypertension. Having hypertension is positively correlated with being overweight, while it is adversely correlated with being underweight [4-5]. Hypertension may develop as a consequence of diabetes, especially if there is dyslipidemia or low levels of HDL [5]. Hypertension risk factors also included a lack of fruit and vegetable consumption, a diet heavy in fat and salt, and regular fast food consumption [6-7]. Additionally, research has shown that elevated blood pressure is associated with psychological stress and physical inactivity [7].Many nations' economies have taken a hit because of hypertension and other noncommunicable disorders [8]. Less strain on the healthcare system and better patient health outcomes are additional benefits of effective hypertension treatment. Underdiagnosed, undertreated, or poorly managed hypertension is common since the condition seldom produces symptoms. Hypertension has been on the rise among adults, despite recent worldwide attempts to control it.

Results from research on hypertension's prevalence, treatment, and management on a global scale have been mixed. Different age groups and differences in wealth, education, and healthcare access may account for some of the observed regional and national variance [9]. Research has shown that

there is a lack of knowledge, treatment, and management of hypertension, even though it is avoidable [10-11]. Hypertension is expected to become much more common in the Middle East in the near future [1]. The nations of the Middle East must devise a plan for their presentations in light of this serious issue. Cardiovascular consequences may be reduced by as much as 30% with only a 10 mmHg reduction in systolic blood pressure (SBP) [12], highlighting the vital importance of hypertension therapy. Consequently, hypertension screening programs are essential for early diagnosis, treatment choices, and patient management support.

Methods

This systematic review aims to investigate the prevalence of hypertension and the level of awareness about the condition among healthcare workers (HCWs) in Saudi Arabia. The review will follow a structured protocol to ensure a comprehensive and unbiased synthesis of the available evidence.

Review Question

The review seeks to answer the following question: What is the prevalence and level of awareness of hypertension among healthcare workers in Saudi Arabia?

Search Strategy

A comprehensive literature search will be conducted in multiple databases, including PubMed, Scopus, Web of Science, and Embase, to identify relevant studies. Additionally, Google Scholar will be used to search for grey literature, including conference proceedings and reports. The search will cover studies published in English between 2000 and the present to ensure an up-to-date analysis. Reference lists of included studies will be manually reviewed to identify any additional studies.

Types of Studies to Be Included

The review will include cross-sectional, cohort, and case-control studies, as well as systematic reviews and meta-analyses focusing on hypertension prevalence and awareness among healthcare workers. Peer-reviewed journal articles, conference abstracts, and grey literature will be considered. Only studies published in English will be included.

Participants

This review will focus on healthcare workers of any professional designation, including doctors, nurses, technicians, and administrative staff, who are currently employed in healthcare facilities

across Saudi Arabia. Studies that include mixed populations will be considered if data specific to healthcare workers can be extracted.

Search Keywords

The primary search keywords will include terms such as “hypertension,” “awareness,” “prevalence,” “healthcare workers,” and “Saudi Arabia.” Synonyms and related terms, such as “high blood pressure,” “knowledge,” “medical staff,” and “KSA,” will also be used to expand the search. Boolean combinations will be applied to refine the search, with examples including: (“Hypertension” OR “high blood pressure”) AND (“awareness” OR “knowledge”) AND (“prevalence”) AND (“healthcare workers” OR “medical staff”) AND (“Saudi Arabia” OR “KSA”).

Study Selection Process

The study selection process will involve two stages: title and abstract screening followed by full-text review. Two independent reviewers will screen the titles and abstracts of identified studies to exclude irrelevant articles. Subsequently, the full texts of potentially eligible studies will be reviewed based on predefined inclusion and exclusion criteria. Any disagreements between reviewers will be resolved through discussion or consultation with a third reviewer. The entire process will be documented using a PRISMA flowchart.

Outcomes

The primary outcomes of interest are the prevalence of hypertension among healthcare workers in Saudi Arabia and their level of awareness about the condition, as assessed through self-reported measures or objective evaluations. Secondary outcomes include risk factors contributing to hypertension in healthcare workers and the association between awareness levels and hypertension management or control.

Data Extraction and Coding

Data will be extracted using a standardized form to ensure consistency. Extracted data will include study characteristics (author, year, location, and design), participant demographics (sample size, age, gender, and profession), prevalence and awareness rates, risk factors assessed, and methods used to measure hypertension and awareness. Data will be coded based on qualitative or quantitative categories relevant to the outcomes of interest.

Data Management

The extracted data will be organized and managed using Microsoft Excel, ensuring regular backups to avoid data loss. Statistical analysis will be performed using software like RevMan or STATA for meta-analysis if a sufficient number of comparable studies are identified. The findings

will be summarized narratively if meta-analysis is not feasible. A PRISMA flowchart will be used to illustrate the study selection process, enhancing transparency and reproducibility.

Results

The initial search identified a total of 54 studies from PubMed, Embase, Cochrane Library, and CINAHL. There were 8 duplicates and 46 studies were screened based on their titles and abstracts. Of these, 20 full-text articles were reviewed, and only one study was eligible for inclusion in this systematic review (Figure 1).

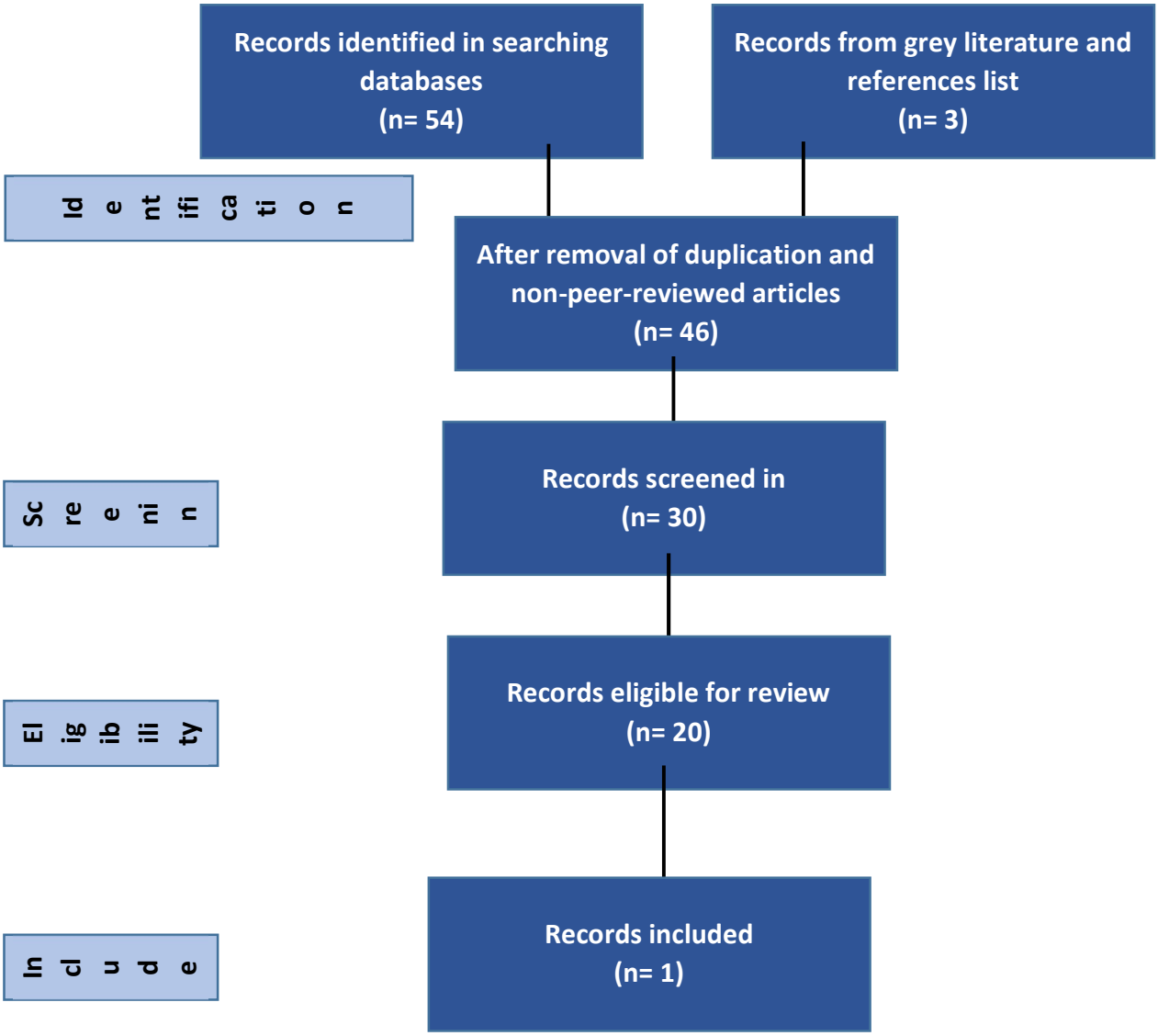

Figure 1: Flow chart of selection process

The search yielded only one study in which a screening of hypertension took place among healthcare professionals as well as authors evaluated awareness regarding hypertension among health care professionals [13]. Twenty primary care clinics in Riyadh city were randomly chosen

in September 1996 for a cross-sectional descriptive research. Researchers asked 107 primary care physicians who work in these clinics to fill out a 38-item survey that included basic information on hypertension, hypertension screening, and the doctors' perspectives and experiences with hypertension screening. Hypertension was correctly defined by one-third of the physicians. While 42% of Saudi Arabian physicians were aware of the prevalence of hypertension, only 57% were aware of its most serious consequence. Nearly all respondents (91%) agreed that hypertension screenings should be mandatory. Although 94% of physicians took a patient's blood pressure reading when they opened their Family Health Records file, only 56% of those same doctors would examine patients over the age of 35 every three to five years. Primary care doctors in the workforce today are both enthusiastic about hypertension screening and lack adequate training in the subject. Therefore, it's safe to say that the current method isn't ideal. Some steps were proposed to fix this problem [13].

Quality assessment

Based on the Newcastle-Ottawa Scale (NOS) criteria, the study [13] demonstrates some strengths but lacks critical details for a full quality assessment. The study shows representativeness by randomly selecting 20 primary health care centers in Riyadh and inviting 107 doctors, but it fails to mention the response rate, making the adequacy of the sample unclear. While a 38-item questionnaire was used to collect data, the abstract does not provide information on the validation or reliability of this tool. Additionally, there is no mention of how non-respondents were accounted for, which raises concerns about potential bias. Despite these limitations, the study's aim and findings are clearly presented, indicating an effort to assess important aspects of hypertension screening practices. However, the lack of comprehensive methodological details limits the ability to fully evaluate its quality.

Discussion

This systematic review underscores the paucity of research on hypertension screening and awareness among healthcare professionals, as evidenced by the identification of only one eligible study. The included study, conducted nearly three decades ago in Riyadh, highlights significant gaps in physicians' knowledge and adherence to recommended screening practices. While most respondents acknowledged the importance of screening, with 91% supporting mandatory blood pressure checks, only 56% adhered to the recommended frequency for patients over 35 years old. These findings reflect a disconnect between attitudes and actual practices, potentially attributed to inadequate training and limited awareness of hypertension guidelines. Additionally, the study revealed deficiencies in knowledge, with only one-third of physicians correctly defining hypertension and just over half understanding its severe complications. These gaps suggest that without updated education and consistent practice reinforcement, the burden of undiagnosed and poorly managed hypertension may persist.

A systematic review conducted to provide an overview of hypertension among general population in Saudi Arabia included twenty-nine studies evaluated 278,873 (14–100)-year-olds. Overall, hypertension prevalence was 22.66% (95% CI: 18.95-26.60), with Cochran's Q=6221.98, dff=22, p<0.0001; I2=99.65%. Egger's test revealed p=0.0033 in 23 trials with 272,378 individuals. The combined hypertension awareness rate was 42.8% from six trials with 36,046 people (95% CI: 35.66-50.01). The Cochran's Q was 781.86 with 5 degrees of freedom (p<0.0001), I^2 was 99.4%, and Egger's test was p=0.3772. Hypertension patients made up 59.4% (95% CI=38.14-79.02) of six trials with 46,075 participants. Cochran's Q showed 9793.79 with 5 degrees of freedom (p<0.0001) and I^2 was 99.95%. Egger's test yielded p=0.8284. Out of 264,817 patients in 15 trials, 34.97% had managed hypertension (95% CI: 27.62-42.68). The study found Cochran's Q=11048.28, degrees of freedom=14, p<0.0001, I2=99.87%, and Egger's test p=0.9760 [14].

Saudis often have high blood pressure. It is not commonly known, thus its population is poorly controlled. [14] found a substantial 22.7% (95% CI: 18.95–26.60) prevalence of hypertension among Saudi 14-year-olds and above These values were lower than those in the UAE (24%), Oman (41.5%), Jordan (33.8%), Lebanon (29.3%) [4], and the Middle East (26%]. This was lower than the global (32%), Korea (30%), and Nigeria (38.1%) rates.

In addition, the frequency was lower than in high-income nations (28.5%). [2]. Men's prevalence ranged from 33% in Australia to 34% in Canada to 59% in Finland in an assessment of 12 high-income nations, and 32.9% among US adults [10-11]. The research in [14] found that hypertension increases with age. Similar findings were seen in Jordan [16] and Malaysia [19]. Atherosclerosis and other cardiometabolic disorders may cause this age connection. Most studies found that hypertension was more common in men than women, which is consistent with Lebanon [4]. Biology (hormones), behavior (smoking), and other risk factors may explain gender disparities in hypertension.

The research found that only 42.8% (95% CI: 35.66-50.01) of patients were aware of their increased blood pressure, leaving others ignorant and untreated [14]. The hypertension control rate in [14] review was 35% (95% CI: 27.62–42.68), lower than the US (48.2%) [11] and Canada (69%) [10]. This rate exceeds Nigeria (14%) [18] and Oman (34.5%) [1]. Over the past 30 years, Saudi Arabia has built more clinics and hospitals to improve healthcare access and support Saudi vision 2030, which emphasizes health promotion and disease prevention. Therefore, future evaluations should show better results [14].

Hypertension is a risk factor for cardiovascular disease, hence early identification and treatment are crucial. Until these people are discovered, cardiovascular mortality and morbidity will remain high. Raising awareness, encouraging healthy habits, and eliminating risk factors are needed to manage hypertension. The healthcare community must promote awareness and adopt effective early detection and treatment methods to minimize hypertension prevalence and death in Saudi Arabia. Clinics, hospitals, and community centers may hold health campaigns to promote

awareness [20]. Finally, the data [14] showed hypertension prevalence, knowledge, treatment, and control gaps. All stockholders—patients, clinicians, and decision-makers—may be encouraged to bridge the gap and reap therapeutic advantages. Hypertension management requires multi-sectoral coordination, primary prevention, and increased healthcare access.

The study's limitations further highlight the need for more robust research in this domain. The lack of recent data raises concerns about the applicability of findings to current practices, especially considering advances in hypertension management and healthcare systems. Methodological shortcomings, such as an unclear response rate and the absence of validation for the data collection tool, raise questions about the study's reliability. Moreover, the study's cross-sectional design limits the ability to infer causality between physician knowledge, attitudes, and practices. Future studies should address these limitations by employing rigorous methodologies, representative samples, and validated tools to evaluate hypertension screening comprehensively. Efforts should also focus on longitudinal studies to assess the impact of targeted interventions, such as continuing medical education, on improving hypertension screening and management in primary care settings.

Conclusion

This systematic review highlights the limited research on hypertension screening practices and awareness among healthcare professionals, with only one study meeting inclusion criteria. The included study, conducted in Riyadh in 1996, identified gaps in primary care physicians' knowledge and practices regarding hypertension, despite favorable attitudes toward its screening. While most physicians recognized the importance of blood pressure monitoring, less than two-thirds adhered to recommended screening intervals for patients over 35. The study's methodological limitations, such as unclear response rates and lack of tool validation, underscore the need for more rigorous and contemporary research in this area. Addressing these gaps through targeted training and systematic evaluations is essential to optimize hypertension screening and management practices.

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