Nurse Led Intervention Regarding Hypertension: Awareness, Treatment Compliance, Lifestyle Modification and Quality of Life Among Hypertensive Adults

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ABSTRACT

Background: Hypertension is a major preventable_risk factor for cardiovascular diseases and contributes significantly to global morbidity and mortality. Despite the availability of effective treatment, inadequate awareness, poor adherence to therapy, unhealthy lifestyle practices, and reduced quality of life remain major challenges, especially in developing countries.
Objective: The present study aims to assess the impact of nurse-led interventions on awareness, treatment compliance, lifestyle modification, and quality of life among hypertensive adults.
Methods: A descriptive review-based study was conducted using secondary data from databases such as PubMed, Scopus, CINAHL, and Google Scholar. A total of 726 studies were identified, of which 13 relevant studies were included based on predefined inclusion and exclusion criteria.
Results: The study results showed that people still lack of adequate understanding of hypertension because they do not know its risk factors and its related medical conditions. The study showed that patients had low treatment compliance because they failed to take their medication and could not maintain proper blood pressure levels. Patients showed inadequate implementation of lifestyle change practices. Nurse-led programs showed positive effects because they enhanced patient understanding and treatment compliance and healthier living practices. The interventions resulted in better life quality for patients while they achieved better clinical results which included decreased blood pressure measurements.
Conclusion: Nurse-led interventions help patients with hypertension by improving their awareness of medical information and their ability to follow treatment plans and their development of healthy habits and their overall health results. Strengthening this intervention is essential, as this would support improved clinical management of hypertension and contribute to reducing the overall disease burden.

Keywords: *Awareness, Treatment compliance, Lifestyle modification, Quality of life, Nurse led intervention*
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INTRODUCTION

Hypertension is increasingly becoming a prevalent and critical health concern in the modern era, with its prevalence rate significantly increasing over recent decades. This growing burden is particularly concerning because hypertension is a major modifiable risk factor for cardiovascular diseases (CVDs), which remain among the leading causes of death globally. In 2019, CVDs accounted for 17.9 million deaths, representing 32% of mortality worldwide. Among the various risk factors contributing to hypertension, both modifiable and non-modifiable factors play a significant role, as illustrated in Figure 1.[1] Approximately one billion individuals are estimated to be suffering from hypertension around the globe; the prevalence rate is expected to reach 1.56 billion people by 2025. As per the estimates by the World Health Organization, the number of hypertensive patients increased from 594 million in 1975 to 1.13 billion in 2015; the disease was seen to have higher rates in low- and middle-income nations.[2]

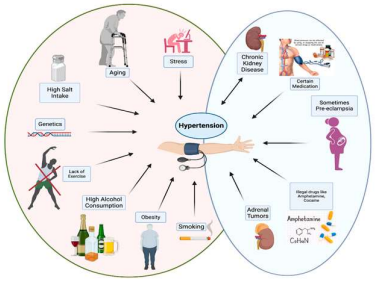
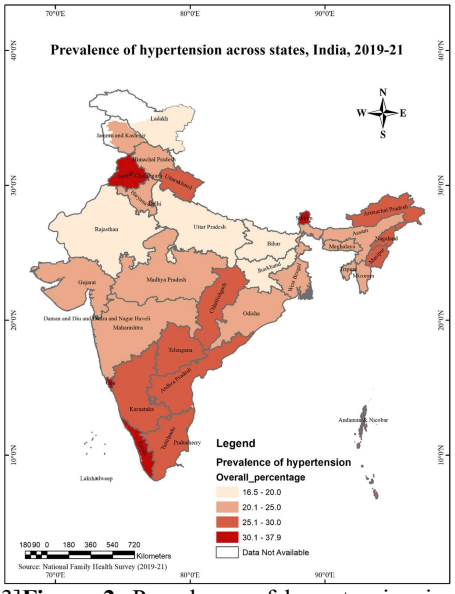


Figure 1. Multifactorial risk factors and causes of hypertension, including modifiable, non-modifiable, and secondary factors.

The burden of hypertension in India has been increasing rapidly over the last few years, which can be attributed to rapid urbanization, lifestyle change, and demographic transition (Figure 2). Epidemiological surveys have revealed that roughly 33.8% of people in urban areas and 27.6% in rural areas have hypertension. In addition, projections show that by the year 2025, 213.5 million individuals in the country will suffer from this condition, up from 118.2 million in the year 2000, which shows an almost 80% increase. The increasing rate of hypertension is also due to the differences in regions, where some communities, for instance, tribes, have a prevalence rate of about 27%, while high prevalence has been found in overweight and high waist circumference groups.



[3]**Figure 2.** Prevalence of hypertension in India, 2019-21[4].

There has been a rising prevalence of hypertension in the state of Haryana as well, with relatively consistent numbers reported in recent studies. The prevalence of hypertension in adults in the state of Haryana lies between 26.2% and 28.1%. [5][6] This can be linked to continued demographic changes, urbanization, and various other lifestyle factors.

Focusing on a more localized perspective, the prevalence of hypertension has also been documented at the district level in Ambala. According to recent studies, the prevalence of hypertension in the district of Ambala lies between 37.5% and 46%.[7][8] As indicated in the table below, hypertension is not restricted to older people, but a considerable number of middle-aged and young adults suffer from it.

In spite of the availability of various methods of treating high blood pressure effectively, it remains sub optimally controlled because of low adherence rates. Inappropriate prescription practices and irrational drug use patterns have also been reported in India, further contributing to poor treatment outcomes.[9] Besides, socioeconomic aspects, like education level, marital status, and period of suffering from the disease, significantly influence treatment adherence rates.

Aside from medications, lifestyle modifications are essential in treating hypertension and improving the quality of life of hypertensive individuals. Lifestyle changes like healthy diets, proper body weight, physical activities, and abstaining from smoking and drinking have proven their effectiveness in lowering blood pressure. Poor nutritional practices and imbalanced dietary intake are also recognized contributors to non-communicable diseases, including hypertension.[10] However, there has been inadequacy in terms of adherence to lifestyle changes by patients with high blood pressure, indicating the need for continued education and encouragement in achieving these objectives.

Nurse-led interventions have proven to be effective in the management of hypertension as it contributes in reducing morbidity and mortality. It ensures optimal blood pressure control through patient education, promotion of treatment adherence, and regular follow-up care. In addition, other approaches such as participation in support groups, mobile phone applications, and SMS reminders have proved their effectiveness in encouraging patients' adherence to treatment programs.

MATERIAL AND METHOD

A review-based descriptive research design using secondary data was utilized in order to assess the awareness, adherence to treatment, changes in lifestyle, and quality of life in hypertensive patients. This research design was considered appropriate since it allowed for an extensive examination of the literature available in this field without the necessity for performing data collection techniques and interacting with the human participants. As a result, all the variables related to hypertension could be evaluated.

The study utilized credible and reviewed resources, including empirical literature, reviews, and research

reports related to hypertension and nursing intervention. A systematic search method was utilized by searching databases such as PubMed/Medline, Science Direct, Scopus, CINAHL, Elsevier, and Google Scholar using relevant keywords such as "hypertension," "awareness," "treatment adherence," "lifestyle modification," "quality of life," and "nurse-led interventions." Recent and valid studies were preferred for their reliability.

A well-defined set of inclusion and exclusion criteria was applied for study selection. The inclusion criteria entailed studies on awareness, medication adherence, lifestyle change, and quality of life among hypertensive patients. Specifically, preference was given to studies that had nurse-based intervention strategies. All the included studies should be written in English and full text only. The exclusion criteria entailed studies on topics other than hypertension, studies irrelevant to the selected variables, duplicate studies, and those that lacked the necessary methodological strength.

The data collection process involved the use of a data extraction framework through which selected studies were critically analysed. Key themes were identified to guide data synthesis, including awareness of hypertension, medication adherence, lifestyle modifications, and quality of life, among others.

Ethical concerns were maintained throughout the study, given that the research was entirely based on secondary information as there were no human subjects involved. All the sources of information were cited appropriately to maintain ethical standards and prevent instances of plagiarism. The information was then presented descriptively to enhance the comprehension of the results.

RESULT

An extensive literature search yielded a total of 726 studies related to hypertension. After systematic screening and application of predefined inclusion and exclusion criteria, 13 studies were found to be relevant and were included for final descriptive analysis.

Awareness of Hypertension among Adults

The reviewed literature indicates that hypertension awareness among adults varies and is generally insufficient both in scope and functionality. Despite the fact that many individuals knew about this medical problem, there appeared to be limited knowledge regarding the risk factors associated with it, as well as its possible complications and ways of prevention and treatment.

The level of awareness remains insufficient regardless of various factors (Table 1). Thus, national data reveal that only 44.7% of patients are aware of their hypertension.[11] Regional figures also reflect that there is an issue of insufficient awareness about hypertension amongst adults.[12] However, despite positive changes in awareness observed through time, including rising rates from 9.6% to 31.8% in rural Haryana,[13] the current rate of awareness remains inadequate. This suggests that while there is awareness of the disease, it is insufficient to help patients identify and manage the condition.

There are several benefits in using nurse interventions to enhance awareness through educational sessions, periodic follow-ups, and individualized counselling services. Regular communication between patients and health care practitioners, especially nurses, plays a critical role in this context.

Table 1. Comparative study on Awareness of Hypertension.

Study Area	Population Characteristics	Sample Size	Key Findings	Author
Rural Ranchi, India	≥20 years	500	73.0% had heard of hypertension, but only 23.2% had average to good awareness	[14]
Kirtipur Municipality, Nepal	Patients aged 20-59 years	580	37.2% of hypertensive individuals were unaware of their condition	[12]
India (National survey)	Patients aged 15-49 years	731,864	Only 44.7% of hypertensive individuals were aware of their diagnosis	[11]

Rural Haryana, India	≥30 years Patients	1,542	Awareness increased from 9.6% to 31.8% over time, but remained inadequate	[13]
Tertiary care OPD, India	OPD attendees	416	40.1% of participants had inadequate knowledge regarding hypertension	[15]

Treatment Compliance among Hypertensive Individuals

Treatment compliance among hypertensive individuals was found to be inadequate across the reviewed studies, reflecting significant gaps in adherence to prescribed antihypertensive therapy and overall disease management.

According to the study, only 13.3% of hypertensive individuals are receiving treatment, while only 7.9% have proper blood pressure regulation.[11] These findings indicate substantial gaps in the continuum of care for hypertensive patients, especially between treatment initiation and control. More longitudinal evidence from rural Haryana reinforces this finding, showing an increasing trend in the treatment rate without improvement control rate, which indicates that increased treatment rates do not always guarantee successful disease control.[13]

The poor compliance rate is another major factor that contributes to these results. Research done in Haryana showed that 72.5% of the patients had poor adherence rates, indicating that the level of non-compliance amongst the hypertensive population is quite significant.[16] The main cause of non-adherence to the regimen was forgetfulness at 59.3%, lack of awareness about the consequences of hypertension, and inadequate motivation to continue the regimen.

Non-adherence to the medications for antihypertension has always been linked to poor health outcomes. According to Charchar et al.,[17] poor adherence to medications causes poor blood pressure control which increases the incidence of cardiovascular conditions, and ultimately causes high mortality rates.

Nurse-led interventions have been shown to improve treatment adherence and hypertension management, leading to substantial reduction in blood pressure. Interventions involving patient education, counselling, behavior modification, and electronic monitoring have increased adherence and self-efficacy in managing hypertension.[18] Moreover, interventions involving structured nurse care coordinator models also facilitate continuous treatment adherence.

Role of Nurse-Led Interventions on Quality of Life among Hypertensive patients

Nurse-led interventions have made considerable contributions in improvement of the quality of life among hypertensive patients due to the betterment of various aspects of health care delivery. The interventional studies highlight the improvement in knowledge acquisition and self-care behavior after the nurse-led interventions. According to a quasi-experimental study, it was found that 90% of the participants showed adequate knowledge with 100% demonstrating proper self-care activities whereas the other group lacked knowledge and displayed moderate self-care practices.[19]

Nurse-led interventions have proven effective in enhancing adherence and self-efficacy levels, both being essential factors affecting the quality of life. According to one of the quasi-experimental studies conducted, there was evidence of a statistically significant improvement in adherence to treatment and self-efficacy scores ($p < 0.05$), alongside an existence of a strong relationship between these two factors within the group receiving intervention.[20]

There is also evidence of clinical improvement that supports the positive impact of nurse-led interventions on the quality of life. In one of the studies where pre-test and post-test designs were used, there was a decrease in the mean value of systolic blood pressure from 141.0 ± 9.95 mmHg to 128.33 ± 8.34 mmHg and diastolic blood pressure from 96.97 ± 5.39 mmHg to 88.23 ± 3.76 mmHg ($p < 0.001$).[18] Furthermore, education interventions led by nurses are highly beneficial in increasing patients' knowledge concerning diseases and its possible complications, with higher knowledge score served in post-test as compared to pre-test; that is, 18.04 ± 6.47 in the pre-test against 33.96 ± 4.59 in the post-test.[21]

Additionally, constant interactions between patients and their healthcare providers through nurse-led care can contribute greatly to improving mental well-being by lowering levels of anxiety, boosting self-confidence in managing the diseases, and ensuring support from others.

Role of Nurse-Led Interventions in Lifestyle Modification among Hypertensive Patients

Poor lifestyle behaviours, such as an unhealthy diet, physical inactivity, and tobacco use, emerged as the main risk factors for the development of hypertension according to the reviewed studies. Inadequate lifestyle practices among patients with hypertension increase the likelihood of developing complications from the disease.[12]

Nurse-led interventions have proved to be successful in helping patients adopt healthy lifestyles through systematic education, behavior change counselling, and follow-ups. A mixed-method review suggested that nursing-led interventions through groups have led to significant changes in weight (7.7 kg, $p = 0.001$) and systolic blood pressure (9.5 mm Hg, $p = 0.001$). Improved lifestyles such as proper nutrition, medication adherence, and body weight management are linked to positive changes in these parameters.[22]

Also, results of a randomized controlled trial conducted on older people demonstrated that interventions led by nurses were associated with significant improvements in lifestyle outcomes, such as decreased body mass index, body weight, and serum cholesterol levels, as well as healthier behaviours and improved quality of life.[23] These reflect the effectiveness of structured and continuous nurse-led interventions in promoting behavioral change. Also, studies have revealed that nurse-led approaches involving education, motivation, and encouragement can improve patients' ability to adapt and maintain healthy behavior patterns. These methods are effective in boosting self-efficacy and commitment, which are important for behavioral change.

CONCLUSION

Hypertension remains a serious public health problem because it affects large numbers of people and leads to numerous health issues. The existing treatment methods show effectiveness yet two main challenges persist because people lack knowledge about treatments and they fail to follow prescribed treatments together with their daily health practices. Nurse-led interventions establish essential pathways which help patients comprehend their medical needs while nurses assist them in maintaining medication schedules and developing permanent health improvements. The implementation of these interventions through enhanced strengthening methods will result in better management of blood pressure together with improved health results for patients.

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