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Physicians' Perspectives of the Factors Influential in Implementing National Clinical Guidelines for Hypertension in Iran: A Qualitative Study

Alireza Khosravi[1], Mousa Alavi[2*], Maryam Eghbali Babadi[3], Mohsen Shahriari[4], Razieh Molavi[5], Azam Mahmoodi[6], Mandy.M. Archibald[7]

[1]professor, hypertension research center, Isfahan cardiovascular research institute, Isfahan University of Medical Sciences, Isfahan, Iran
[*2]Ph.D, Associate Professor, Nursing and Midwifery Care Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
[3]PhD, Assistant Professor, Nursing and Midwifery Care Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
[4]Ph.D, Professor, Nursing and Midwifery Care Research Center, Adult Health Nursing Department, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran
[5]MSc of Elderly Nursing, Al-Zahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran
[6]BScN, MScN, Faculty Member of Nursing Department, Islamic Azad University Dehaghan Branch, Dehaghan, Isfahan, Iran
[7]BScN, PhD, University of Manitoba, College of Nursing, Rady Faculty of Health Sciences, 99 Curry Pl, Helen Glass Centre for Nursing, Winnipeg, Manitoba

Corresponding Author Address: Hezar Jerib St., Isfahan University of Medical Sciences and Health Services, School of Nursing and Midwifery

Tel: 0098-9138936489

Email: m_alavi@nm.mui.ac.ir

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Abstract

Background: Although clinical guidelines help in the prevention, diagnosis, and management of hypertension, individuals with hypertension often remain undiagnosed, or once diagnosed, may not receive adequate care and treatment.

Objectives: In this study, we explored physicians' perspectives of the factors influential in implementing the Iranian Recommendations on Prevention, Evaluation, and Management of Hypertension (IRPEM-HTN).

Methods: A qualitative descriptive study was conducted using the purposeful sampling method to enroll 30 physicians from October 2016 to May 2018. The physicians working in private offices or university-affiliated health centers/hospitals in the province of Isfahan, Iran, were included in this study one year after participating in the IRPEM-HTN program. The data were gathered through semi-structured interv iews. The transcribed data were thematically analyzed, and the rigor was ensured following the procedure outlined by Braun and Clark.

***Results*:** This themes identified were: 1) macro- and meso-contextual factors, emphasizing that a) policies at all levels affect guideline adherence, and b) environmental-contextual factors affect guideline adherence, 2) micro level factors, emphasizing that c) attributes of the guideline affect guideline adherence, and d) clinician- and patient-level factors affect guideline adherence. Micro-, meso- and macro-level factors influenced guideline implementation.

Conclusion: The attitudes, awareness, knowledge, and capacity of clinicians, as well as a broader socio-cultural context should be taken into account for guideline implementation.

Keywords: hypertension, preventive care, clinical practice guideline, facilitators, barriers, physicians

Introduction

The prevention and control of hypertension (HTN) is a modern global challenge due to social and lifestyle changes that heighten risk factors [1,2]. A systematic review of the studies published between 1980-2012 reported the prevalence of HTN in Iran as 22%, with a higher prevalence in females after the age of 40 years [3]. The high prevalence of HTN and its impacts on individuals and health systems have motivated

researchers for the development and application of clinical guidelines to facilitate timely diagnosis and consistent evidence-based care provision in practice settings. Clinical guidelines are "systematically developed statements to assist the practitioner and patient to decide about appropriate health care for specific clinical circumstances" [4]. These guidelines are increasingly becoming a familiar part of health services [5], particularly in complex diseases such as HTN [6].

A number of clinical guidelines for HTN management have been developed globally [7-9]. In 2012, the first Iranian Recommendations on Prevention, Evaluation, and Management of Hypertension (IRPEM-HTN) were developed by Noohi et al. [10] considering the existing data and the findings of local studies conducted on HTN, as well as social and health care requirements. The goal was to provide a comprehensive yet easy-to-follow guide for health professionals to prevent, diagnose, manage, and control HTN in Iranian patients. Thus, in 2016, a training program was designed for general physicians to enhance the uptake and applicability of IRPEM-HTN.

It has been recognized that developing HTN guidelines alone does not guarantee effective prevention, management, and treatment of HTN, unless they are successfully implemented in clinical practice. Hence, the identification of the factors that either facilitate or hinder the implementation of clinical guidelines is critical to understand the reasons behind the success or failure of the implementation process [11]. For instance, in their study on barriers to adherence to hypertension guidelines, Lin *et al*. found that HTN was not a clinical priority for clinicians at the time of visit [12]. Other factors, such as physicians' acceptance of higher-than-recommended blood pressure [13], overcrowded clinics that hinder blood pressure control, non-availability of HTN drugs in clinics [14], and poor adherence to antihypertensive drugs [15], have been identified as barriers to physicians' adherence to HTN guideline. Moreover, launching easy-to-find online databases for guidelines [16], perceived improvements in the quality and cost of care provision [17], good provider–insurer relationships, automated administration systems, and tailoring guidelines/patient education [18] have been identified as the facilitators of successful HTN guideline implementation.

Although there are pieces of evidence regarding the factors influencing the implementation of clinical guidelines on the prevention, treatment, and management of HTN, context-specific factors are yet to be understood. As these guidelines are implemented in healthcare practice, it is important to learn lessons from the first-hand experiences of those who use them [5]. Therefore, the purpose of this qualitative study was to identify the context-specific factors influencing IRPEM-HTN implementation in Iran.

Methods

This study used a qualitative descriptive method and was conducted from October 2016 to May 2018. This method supports a broad and extensive data collection process in order to generate in-depth understanding of the phenomena of interest [19]. The qualitative descriptive method in this study allowed for obtaining promising insights into the factors influencing physicians' use of the IRPEM-HTN [20]. Ethical approval for the study was received from the Research Ethics Committee of Isfahan University of Medical Sciences (IUMS) (Number 91004751).

The study population consisted the physicians working in private offices or university-affiliated health centers/hospitals in the province of Isfahan, Iran, one year after participating in the IRPEM-HTN program. for at least one year and working in private offices or university-affiliated health centers/hospitals in the province of Isfahan, Iran. Isfahan province is located in the central part of Iran. Private and public (i.e., governmental) health sectors in Iran are regulated and directed by the Ministry of Health and Medical Education, and every province of Iran has at least one university of medical sciences that manages health services in that province. Isfahan University of Medical Sciences (IUMS) supervises all university-affiliated and private hospitals and clinics, as well as private offices in Isfahan. Physicians may work either in university hospitals and clinics or private sectors, or in both.

The physicians in this study were recruited purposefully based on their working background, particularly, their experiences in managing patients with HTN after one year of IRPEM-HTN implementation. The physicians working in

hospitals were selected from the general and cardiology wards. The sample size was decided based on data saturation [21]. Potential participants were suggested by the research team, as well as the participants themselves during the interviews, and if they agreed, they were invited to participate in the study. The purpose of the study was explained, and written consent was obtained. An experienced interviewer conducted all the interviews under the full coordination and supervision of the research team. Interviews were unstructured and oriented around the central question of "What do you consider are the factors facilitating or hindering the implementation of the IRPEM-HTN?". Interview questions were adjusted throughout the interviews to obtain information as comprehensive as possible. The voices of the interviews were recorded and transcribed professionally. Interview duration ranged from 20 to 60 minutes (an average of 45 minutes).

Unstructured interviews were used to collect the data. The interviews were audio-taped, transcribed, and analyzed according to the method described by Braun and Clark [22], which included the following steps:1) familiarizing oneself with the data (i.e.), 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, and 6) producing the report.

Audio-taped interviews were transcribed verbatim in the original language (i.e., Persian) and then repeatedly read to be immersed in the data. Then an initial list of ideas (e.g., a descriptive summary) about the data content was generated, and meaningful terms and sentences were extracted. Similar codes then were combined to form overarching themes. This was followed by exploring potential relationships between categories and themes, as well as between different levels of themes (e.g., main overarching themes and sub-themes within each theme). The themes emerged were refined to achieve internal congruence and logic and to ensure identifiable distinction between the themes. The themes were then defined to clearly determine what the themes represent, what they are, and what they are not. Finally, the themes were named to give the reader a sense of what the theme is about.

The following steps were taken to increase the rigor of the results. First, MA (i.e., the corresponding author) and AM independently coded ten interviews and compared their results together to find potential inconsistencies. If there were analytic differences, for example in the naming of concepts or categorizing them into subcategories and categories, they were resolved through discussion and by referring to the data. Conclusions were then reviewed and confirmed by all authors and checked for clarity and plausibility.

Results

Participants' Demographic profiles

Thirty physicians participated in the study each by completing one interview. The participants' demographic features have been presented in Table 1.

Table 1: Demographic Features of the Participants

Variables		Statistical index
		Mean (SD)
Age		42(8.6)
Working experience (Year)		10.3(6.7)
		Frequency (%)
Sex	Male	12 (40)
	Female	18 (60)
Place of work	University hospital	11(36.7)
	Private sector	12(40)
	Both university hospital and private sector	7(23.3)

We identified two main themes along with their related sub-themes based on the inductive analysis of the interviews. Accordingly, the facilitators and barriers of IRPEM-HTN guidelines' implementation included: 1) macro- and meso-contextual factors (i.e., 1.1. policies at all levels

affect guideline adherence and 1.2. environmental-contextual factors affect guideline adherence), and 2) micro-level factors (i.e. 2.1. the guideline's attributes affect guideline adherence, and 2.2. clinician- and patient-oriented factors affect guideline adherence) (Table 2).

Table 2: Themes, Categories, and Sample Subordinate Categories to Illustrate the Inductive Analysis Process

Themes	Categories	Sample subordinate categories
Macro- and meso-contextual factors	Policymaking at all levels affects guideline adherence.	Human workforce Coordination of care provision
	Environmental-contextual factors affect guideline adherence.	Pertinent culture Lifestyle elements
Micro -level factors	Attributes of the guideline affect adherence to it.	Guideline's applicability to the current processes Addressing expectations of the target audience
	Clinician- and patient-oriented factors affect guideline adherence.	Characteristics of service providers Patient-related factors

Depending on how they are approached and managed, these factors can play either a facilitating or deterrent role. These include all levels from macro-level (such as national policy making) to micro-level (such as the personal characteristics of service providers and recipients).

Theme 1: Macro- and Meso-contextual Factors

1-1. Policies at All Levels Affect Guideline Adherence

At the policy making level, participants reported the importance of managing human resources and coordinated care provision. Participants emphasized that the outcomes of professional efforts in treating HTN would reflect how resources were allocated. This was described as an inverse relationship:

"When workload increases, the quality of blood pressure measurements by staff reduces, which means we may unfortunately miss measuring the patient's blood pressure and not properly diagnose hypertension." (IV2)

Inversely, when the number of personnel is adequate, the goals of prevention and treatment of HTN were better achieved. In this condition, some physicians can go beyond the measurement of blood pressure and include other management efforts as well. One participant stated:

"We train our patients how to manage psychosocial stress and use stress reduction methods; we also have a nutritionist to whom we refer patients. These efforts are very effective in reducing their blood pressure." (IV8)

In addition to human resources, coordinated care provision by different service providers was noted as an important factor to achieve comprehensive HTN control and treatment. The participants believed that it is necessary for senior managers to impose and audit required rules and regulations to support such cross-institutional coordination:

"If we want health care provision to be coordinated, many other groups must also be included... Cross-institutional coordination should be implemented and managed by the Ministry of Health." (IV6)

2-1. Environmental-contextual Factors Affect Guideline Adherence

Environmental-contextual factors refer to the pertinent cultural and lifestyle elements that are common in a large society (i.e., Iranian society in this instance). These factors can affect health-related attitudes and behaviors. In this study, the environment and context presented different risk factors and challenges in the prevention, treatment, and control of HTN. According to the participants' experiences, many risk factors and health-threatening behaviors are rooted in

people's lifestyles and can exaggerate the rising trend of HTN and confer resistance to therapeutic regimens, thereby reducing their positive outcomes. One participant expressed:

"Well, unfortunately, in our society, doing physical activity and exercise is very low… people do not pay serious attention to it at all." (IV5).

Easy access to and use of tobacco, traffic-related air pollution, and stress have been noted among the risk factors influencing the outcomes of HTN therapy. In this regard, one of the participants expressed: "Tobacco is one of the factors limiting the management of HTN and blood pressure control", and "We tell the patient not to smoke, but cigarettes are purchased everywhere. There are also other issues like traffic and pollution." (IV7).

These risk factors negatively influence the achievement of desired HTN therapeutic outcomes. In some cases, the relationship between risks and outcomes was regarded as cyclical and mutual. For instance, "Stress management in the community is critical for controlling blood pressure, I think that people who are unwell experience more stress; I think stress is the key." (IV18).

Theme 2: Micro-level Factors

1-2. Attributes of the Guideline Affect Guideline Adherence

According to our findings, the successful implementation of the IRPEM-HTN guideline required the compliance of the healthcare team, which depended on not only the extent the guideline could comprehensively fulfil HTN management, but also the guideline's applicability to the current processes of HTN management and treatment (i.e., fitness to the current practices and contexts). The performance of the IRPEM-HTN in real-world clinical settings, in line with the expectations of the target audience and along with an effective feedback mechanism, was also identified as a predictor of clinicians' compliance with the guideline. One participant mentioned:

"It was a great help for me to treat a patient with hypertension….it actually answered many questions of mine... This guide helped me talk more decisively with my patients when I was confident in my treatment…My faith in my treatment became better, and I could better guide my patients." (IV19)

Inversely, when the guideline was assumed not applicable and non-functional in clinical practice, it did not facilitate HTN management and was a barrier in achieving desired therapeutic goals. A participant's statement exemplified this notion:

"We could not act according to the guideline at all. There were unrealistic items in the guideline." (IV26)

2-2. Clinician- and Patient-oriented Factors Affect Guideline Adherence

The human factor (i.e., the clinician and patient) was regarded as an important element in effectively implementing the IRPEM-HTN guideline and was recognized as a theme in the present study. This theme was related to the characteristics of service providers at different levels of the health system, as well as patients' characteristics (e.g., awareness of the guideline, readiness to be engaged with the guideline, and general response to guideline implementation).

For the clinicians, readiness of the health team encompassed having adequate knowledge about and positive attitude towards the IRPEM-HTN, as well as the motivation necessary to eagerly encourage patient compliance and properly implement the clinical guideline. The participants' experiences showed that a current challenge of preventing, controlling, and treating HTN was the lack of readiness and motivation of service providers to stay up-to-date with evidence-based best practices and holistic assessment of patients with HTN. Two of the participants expressed this sentiment overtly:

"The main issues for us over the years of our general medical practice have been not having motivations to conduct research in this area and read novel journals, so we are not too familiar with new anti-hypertensive drugs and their indications and complications." (IV24)

"There is something that is very important, and that is physicians' not being motivated…that doctors do not have enough motivation to treat patients." (IV12)

Patient-oriented factors were also recognized as important by the physicians. The participants reported that patients' attitudes, knowledge, and awareness about the nature of HTN and its symptoms and medical requirements were among the main reasons determining the success or failure of the guideline. These factors manifested

in the form of resistance to change and a lack of compliance with referrals:

"Most of our problems are due to patients' late referrals, mostly because of the lack of awareness… and the fact that patients may not know the symptoms of the disease." (IV5)

Beside the vital role of patients' knowledge and awareness, their attitudes towards the disease and its treatments were considered important factors in adopting healthy behaviors and addressing misconceptions, including seeing hypertension as a non-pathological condition. One of the participants expressed this misconception as:

"A term that is often misleading is that patients say 'my hypertension is a psychological condition, and I do not need medication'." (IV2)

Discussion

This study identified the facilitators and inhibitors of the translating of the knowledge contained in the IRPEM-HTN guideline into clinical practice. The results of our study showed that the hindering factors were experienced across multiple levels, from the macro-level of policy making to the micro-level of individuals' characteristics.

A defect in strategic commitment to the control of HTN at the policymaking level, the lack of support for relevant preventive programs, and the lack of coordination between service and resource providers were among the important barriers of the successful implementation of the IRPEM-HTN guideline. The important role of macro-level support has also been emphasized by Lee *et al.* [23] who in their qualitative study reported that existing systems, structures, and policies could not support the implementation of the guideline and are actually important obstacles to its implementation. Another policy-related issue highlighted in other studies is resource allocation [24,25]. Particularly, a reduction in human resources' capacity can result in excessive pressure on physicians and other health team members [26]. When these guidelines do not provide the most practical option to staff, a reduction in staff capacity ultimately wanes the priority of providing services that are aligned with recommended guidelines [27].

Our findings emphasized the importance of environmental and contextual factors, such as culture and lifestyle, in shaping the attitudes and risk factors that can positively influence health decisions and patient compliance in order to achieve better therapeutic outcomes. This notion is supported by an Iranian study reporting that the most important risk factors among patients with ischemic heart disease (15-49 years old) included dietary factors, hypertension, physical inactivity, and being overweight [28]. This demonstrates the importance of considering appropriate responses for the prevention, treatment, and management of HTN, including responses to attitudinal changes due to exaggerated risk factors in Iranian society. In this context, it has been suggested that strategies for applying evidence-based interventions should be tailored to target groups, their goals, and their context [29].

Our findings demonstrated that the comprehensiveness, applicability, and perceived usefulness of the clinical guideline played a crucial role in its successful implementation. Although most of the participants in the study expressed that comprehensiveness and applicability were favorable factors for implementing the guideline, other studies have noted these factors as challenges [24,30]. For example, participants in the study of Hisham et al. [31] believed that strict adherence to evidence-based recommendations and ignoring the role of clinical experiences in the guideline could pose a threat to its implementation and patient care. These findings are in accordance with the results of Dugelay et al. [32], where physicians with more clinical experiences encountered difficulties in using the guidance.

At micro-level, the readiness of physicians and other members of the health team, including having the knowledge, attitude, and motivation required, was a prerequisite for being engaged with and adhering to the guideline. This finding was supported by other studies. For example, Vest et al. [26] found that the lack of proper knowledge and understanding was a barrier to the use of the guidance for treating chronic kidney diseases. Attitudinal responses were also noted to have considerable impacts on guideline implementation. The results of Mosavianpour et al. [30] showed that knowledge and positive attitudes were the factors that favourably affected the implementation of guidelines for managing sepsis in a pediatric hospital; on the other hand, motivational factors had the least role in this regard.

As for physicians and other health care workers, the lack of knowledge, positive attitudes, and readiness among patients and the general public [33,34] is a common obstacle to the implementation of clinical guidelines in Iran.
The participants of this study may not precisely advocate for all Iranian physicians working in different regional contexts across the country.

Conclusion

The findings of this study highlighted that the effective implementation of the IRPEM-HTN guideline in clinical practice was influenced by factors ranging from macro (e.g., policymaking) to micro (e.g., individuals' features) levels. The implementation of the guideline can be facilitated by boosting physicians' and patients' knowledge, awareness, and willingness, promoting human resources' capacity, as well as encouraging the accessibility of the program.

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Conflict of interest

The authors have no conflict of interest.

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