Original Research Paper

Community Medicine

ASSESSMENT OF KNOWLEDGE FOR RISK FACTORS OF DIABETES & HYPERTENSION AMONG PATIENTS ATTENDING MEDICINE OPD AT DISTRICT HOSPITAL, SAGAR: A CROSS-SECTIONAL STUDY.

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ABSTRACT
Introduction: Diabetes and hypertension are among the most prevalent non-communicable diseases worldwide and are major contributors to morbidity and mortality. Both conditions often remain undiagnosed in their early stages, earning them the label of "silent killers." Diabetes is characterized by elevated blood glucose levels, while hypertension refers to persistently high blood pressure. If not detected and managed early, these conditions can lead to serious complications such as heart disease, stroke, kidney failure, and vision impairment. With changing lifestyles and increasing urbanization, the prevalence of these diseases is rising rapidly, especially in developing countries like India, making early awareness and preventive measures essential. **Aim:** To assess the knowledge for risk factors associated with diabetes & hypertension among patients attending the Medicine OPD. **Methods:** Data were collected using a semi-structured questionnaire designed to assess participants' knowledge regarding non-communicable diseases (NCDs), associated lifestyle factors, and relevant family history. **Results:** The overall mean knowledge score among all participants was 12.2 ± 3.4, indicating a moderate level of awareness in the study population. **Conclusion:** Targeted health education campaigns should focus on improving awareness of both modifiable and non-modifiable risk factors, especially in rural and low-literacy populations. Integration of preventive education into routine primary care and mass media outreach is essential for promoting sustained behavioural change.

KEYWORDS : Awareness, Prevention, Hypertension, Diabetes

INTRODUCTION

Non-communicable diseases (NCDs)—including cardiovascular diseases, cancers, diabetes mellitus, and chronic respiratory illnesses—constitute a major global health burden. Collectively, NCDs account for approximately 38 million deaths annually, representing 68% of all global mortality. In India, they are responsible for an estimated 5.87 million deaths per year, which corresponds to 60% of the country's total mortality.[1]

India, with a population exceeding 1.3 billion, contributes to over two-thirds of all NCD-related deaths within the WHO South-East Asia Region (SEAR) (WHO, 2014; United Nations Statistics Division). According to the 2011 WHO report on NCDs in SEAR, three key risk factors—raised blood pressure, elevated blood glucose, and tobacco use—were primarily responsible for the majority of annual deaths in the region.

Prevalence Data from SEAR Countries Show Varied Patterns:
- **Raised Blood Pressure (BP):** India's prevalence stands at approximately 35%, which is lower than Myanmar (highest at 42%), Indonesia, Sri Lanka, Bhutan, and Thailand, but higher than Nepal, Maldives, Bangladesh, and the Democratic Republic of Korea (lowest at 19%).
- **Raised Blood Glucose (Diabetes):** Bhutan recorded the highest prevalence (12–13%), followed by India (11%), placing it second among SEAR nations.[1]

In 2024, the global burden of non-communicable diseases continues to escalate, with diabetes and hypertension being among the leading causes of morbidity and mortality worldwide. According to the International Diabetes Federation (IDF Diabetes Atlas, 10th Edition, 2021), approximately 537 million adults aged 20 to 79 years were living with diabetes globally, and this number is projected to rise to 643 million by 2030 and 783 million by 2045. The incidence of diabetes is increasing most rapidly in low- and middle-income countries, driven by urbanization, changes in dietary patterns, physical inactivity, and ageing populations. Simultaneously, the World Health Organization (WHO, 2023) estimates that over 1.28 billion adults aged 30 to 79 years globally are affected by hypertension, with nearly two-thirds residing in low- and middle-income countries. Despite this high prevalence, only about 42 per cent of adults with hypertension are diagnosed and receiving treatment. This highlights a significant global public health concern, calling for enhanced efforts in increasing knowledge, prevention, early detection, and effective management of both diabetes and hypertension.[2]

According to the International Diabetes Federation (IDF), in 2024, approximately 89.8 million adults aged 20 to 79 years in India were living with diabetes. This staggering figure highlights the growing burden of diabetes in the country, positioning India among the nations with the highest number of diabetic individuals globally. The rising prevalence is attributed to a combination of genetic susceptibility, rapid urbanization, sedentary lifestyles, unhealthy dietary habits, and increasing obesity rates. These statistics underscore the urgent need for nationwide awareness, early screening, and preventive strategies to mitigate the health and economic impacts of diabetes on India's healthcare system.[3]

Diabetes and hypertension are widely recognized as silent killers, primarily due to their insidious onset and asymptomatic progression in the initial stages. Many individuals remain unaware of their condition until complications arise. The silent nature of these diseases contributes to delayed diagnosis and poor management, especially in low-resource settings. Regular screening, public awareness, and lifestyle modifications are therefore essential to identify these conditions early and prevent their devastating consequences. Enhancing community-level knowledge and encouraging proactive health-seeking behaviour are key strategies to address this growing public health challenge.[4]

The ICMR-INDIAB study done in 2023 also showed a growing prevalence of diabetes among 20–44 year age group, especially in urban areas.[5] Similarly, NFHS-5 (2019–21) shows elevated blood pressure in 10–15% of individuals aged 25–39, creating a global burden.[6]

Hence, awareness is very crucial because diabetes and hypertension often remain silent until complications arise, making early detection difficult. Educating young adults and creating awareness empowers them to adopt healthier lifestyles and seek timely care, reducing long-term health risks.[7]

So, in light of the increasing burden of non-communicable diseases, this study was planned to assess the level of knowledge regarding their risk factors among patients attending the Medicine Outpatient Department at the District Hospital, Sagar. Understanding the knowledge gaps in this population will help inform the targeted health education initiatives, promote early diagnosis and management, and contribute to the broader goal of NCD prevention and control at the community level.

METHODOLOGY
Study Setting: The study was conducted in the Medicine Outpatient Department (OPD) of the District Hospital, Sagar.

Study Design: This research employed a descriptive cross-sectional study design.

Sample Size: The study population comprised patients attending the Medicine Outpatient Department (OPD) at the District Hospital, Sagar, over a period of three months

Study Population: The study population comprised adult patients attending the Medicine Outpatient Department (OPD) at the District Hospital, Sagar, Madhya Pradesh. Individuals of both sexes, aged 18 years and above, who were present during the study period and provided informed consent, were included. Patients who were critically ill or unable to respond to the questionnaire were excluded. This population was selected to assess the level of knowledge regarding risk factors associated with diabetes and hypertension in a real-world clinical setting, representing a diverse mix of socio-demographic and health backgrounds typical of a district-level healthcare facility.

Inclusion Criteria
- Adult patients aged 18 years and above attending the Medicine Outpatient Department (OPD) at District Hospital, Sagar, during the study period (October to December 2024).
- Individuals who voluntarily provide informed consent to participate in the study.

Exclusion Criteria
- Patients requiring immediate or emergency medical intervention.
- Individuals who decline to provide informed consent for participation.

Study Duration: The study was conducted over a period of three months.

Study Procedure: Data was collected using a semi-structured questionnaire designed to assess participants' knowledge regarding non-communicable diseases (NCDs), associated lifestyle factors, and relevant family history.

Statistical Analysis: Descriptive statistical methods were employed to summarize demographic characteristics, knowledge levels, and the prevalence of identified risk factors among the study population.

RESULTS :
The present study included a total of 300 participants attending the Medicine OPD at the District Hospital, Sagar. The gender distribution revealed that the majority were males, 162 individuals (54%), while females comprised 138 participants (46%).

In terms of age distribution, the majority of participants (56%) were within the 31–50 years age group, reflecting a middle-aged population that is more likely to access OPD services. This was followed by 69 participants (23%) who were aged above 50 years, and 63 participants (21%) who were aged 30 years or below.

When analyzed by place of residence, a significant portion of the study population (183 participants or 61%) resided in urban areas, while 117 participants (39%) were from rural backgrounds. This indicates an urban predominance in the OPD attendance pattern at the hospital.

Regarding educational status, a diverse range of literacy levels was observed. A considerable proportion (33%) had completed secondary education, while 30% were graduates or held higher educational qualifications. Primary education was reported by 24%, whereas 13% of the participants were illiterate.

In terms of occupation, the most represented group was service holders or professionals, constituting 111 participants (37%). This was followed by homemakers or unemployed individuals (26%), shopkeepers or business owners (20%), and daily wage workers (17%), showing a mix of occupational backgrounds.

The assessment of participants' knowledge regarding diabetes risk factors revealed several key findings. A large proportion of respondents (71%) correctly identified an unhealthy diet, particularly one high in sugar and refined carbohydrates, as a major contributor to diabetes. Physical inactivity was recognized as a risk factor by 195 participants (65%), indicating a reasonable awareness of lifestyle-related causes.

Obesity was acknowledged as a contributing factor by 153 participants

(51%), while a lower proportion (42%) were aware that a family history of diabetes increases risk. Awareness of increasing age as a risk factor was noted in 111 participants (37%), highlighting a gap in understanding non-modifiable risks.

Stress and sleep disturbances were identified by 99 participants (33%) as potential contributors, and only 78 individuals (26%) recognized alcohol consumption as a risk factor for diabetes.

These findings suggest that while knowledge of modifiable lifestyle factors is relatively high, awareness of genetic and less visible risks remains limited among the population studied.

Table 1: Knowledge of Risk Factors for Diabetes Among Participants (N = 300)

S. No.	Risk Factor	Number Identified out of 300 participants	Percentage (%)
1	Unhealthy diet (high sugar/carbs)	213	71%
2	Physical inactivity	195	65%
3	Obesity	153	51%
4	Family history of diabetes	126	42%
5	Increasing age	111	37%
6	Stress and sleep disturbances	99	33%
7	Alcohol use	78	26%

The analysis of knowledge regarding hypertension risk factors among study participants revealed that the most commonly recognized factor was excess salt intake, identified by 204 participants (68%). This was followed by psychosocial stress, which was acknowledged by 177 participants (59%), suggesting a fairly good awareness of stress-related health impacts.

Obesity or being overweight was recognized as a contributing factor by 147 participants (49%), while sedentary lifestyle was reported by 138 participants (46%), indicating moderate understanding of lifestyle-related risks.

When it came to substance use, alcohol consumption was identified as a risk by 120 participants (40%), and smoking was correctly reported by 105 participants (35%) as contributing to elevated blood pressure.

Awareness of family history as a non-modifiable risk factor was the lowest, with only 93 participants (31%) recognizing its relevance in hypertension risk.

These findings suggest that while modifiable risk factors such as diet, stress, and physical inactivity are moderately well understood, there remains a significant knowledge gap regarding hereditary risk and behavioral contributors such as smoking and alcohol use.

Table 2: Knowledge of Risk Factors for Hypertension among Participants (N = 300)

S. No.	Risk Factor	Number Identified out of 300 participants	Percentage (%)
1	Excess salt intake	204	68%
2	Psychosocial stress	177	59%
3	Obesity/Overweight	147	49%
4	Sedentary lifestyle	138	46%
5	Alcohol use	120	40%
6	Smoking	105	35%
7	Family history of hypertension	93	31%

Knowledge regarding risk factors of diabetes and hypertension was assessed using a structured 20-point scale, with 10 items allocated to each disease condition. Each correct response was awarded one point, making the maximum possible score 20.

Based on the total scores, participants were categorized into three groups:
A total of 81 participants (27%) demonstrated good knowledge, scoring 15 or more out of 20. The majority, 147 participants (49%), fell into the moderate knowledge category, with scores ranging from 10 to 14. Poor knowledge, defined as scoring less than 10, was observed in 72 participants (24%).

The overall mean knowledge score among all participants was $12.2 \pm$

3.4, indicating a moderate level of awareness in the study population.

When analyzed by gender, males had a slightly higher mean score of 12.5 ± 3.3, compared to 11.8 ± 3.5 in females. This difference was statistically significant ($p = 0.04$), suggesting gender may influence knowledge levels.

A clear disparity was observed based on the place of residence. Urban participants had a significantly higher mean score of 13.1 ± 3.2, while rural participants scored 10.6 ± 3.6. The difference was highly significant ($p < 0.001$), pointing to potential urban-rural differences in access to health information and education.

Educational status showed a strong positive correlation with knowledge scores. Participants who were graduates or held higher qualifications had a mean score of 14.8 ± 2.7, while illiterate participants scored substantially lower at 8.2 ± 2.1. This difference was also statistically significant ($p < 0.001$), highlighting the role of education in health awareness.

These findings suggest that while a moderate level of knowledge exists among the general OPD population, targeted efforts are required to improve awareness, particularly among rural, less educated, and female subgroups.

Table 3 :- Association of Knowledge Scores with Demographic Variables (N = 300)

Demographic Variable	Chi-square Value (χ^2)	p-value	Significance
Education level	32.1	< 0.001	Statistically significant
Residence (Urban/Rural)	15.7	0.001	Statistically significant
Gender	4.21	0.04	Statistically significant
Age group	—	> 0.05	Not significant

This table indicates that knowledge scores were significantly associated with education level, place of residence, and gender, while no significant association was found with age groups.
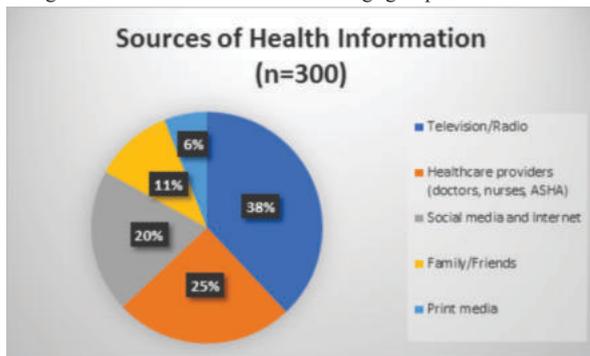
Figure 1: Distribution of Sources of Health Information Regarding Risk Factors of Diabetes and Hypertension (n=300).

DISCUSSION

The study assessed the knowledge of risk factors for diabetes and hypertension among 300 adult participants attending the Medicine OPD at a district hospital. The findings show a moderate level of awareness, with 27% of participants demonstrating good knowledge, 49% moderate, and 24% poor. While awareness of modifiable lifestyle-related risk factors was relatively high, knowledge about non-modifiable and behavioral risk factors remained very limited.

Unhealthy dietary habits and physical inactivity were identified as major risk factors for diabetes by 71% and 65% of participants, respectively. These results were similar with findings from a study conducted by Shrivastava et al. (2020) in Tamil Nadu, where 69% of respondents recognized poor diet and 63% acknowledged lack of physical activity as key contributors to diabetes.[8]

Awareness regarding the role of increasing age in diabetes risk was noted in only 37%, which is similar to the findings of Kaur et al. (2018) from Chandigarh, where just 30% recognized age as a relevant risk factor. This shows that non-modifiable factors are under-emphasized in public.[9]

Regarding hypertension, study found that 68% of participants correctly identified excess salt intake as a risk factor, which is comparable to the 65% reported by Patil et al. (2019) in a community-based study in Karnataka.[10]

Psychosocial stress was identified by 59% in our study, which is consistent with Bharathi et al. (2021), who reported that 55% of participants in Telangana were aware of the link between stress and elevated blood pressure.[11] However, recognition of smoking (35%) and alcohol consumption (40%) as hypertension risk factors was relatively low, showing similar gaps noted in the studies by Gupta et al. (2016)[12] and Yadav et al.[13]

An important observation from our analysis is the significant association between knowledge scores and sociodemographic variables, including education level, residence, and gender. Participants with higher education (mean score: 14.8) had substantially greater awareness than those who were illiterate (mean score: 8.2), a trend that is well-supported by national-level studies such as the ICMR-INDIAB study. Similarly, urban residents demonstrated significantly higher knowledge scores than rural counterparts, underscoring disparities in access to health information—a finding echoed by Bhatia et al. in a study from Uttar Pradesh.[14]

Overall, while the level of awareness regarding common modifiable risk factors appears satisfactory, there remains a need to strengthen community health education efforts. Emphasis must be on increasing understanding of hereditary, age-related, and behavioral risk factors, particularly among vulnerable subgroups such as rural residents, less educated individuals, and women.

CONCLUSION

This study depicts a moderate level of awareness regarding the risk factors for diabetes and hypertension among individuals attending the Medicine Outpatient Department at the District Hospital, Sagar. While a substantial proportion of participants demonstrated adequate knowledge of modifiable risk factors—such as unhealthy diet, physical inactivity, excessive salt intake, and psychosocial stress—there remains a considerable deficiency in the understanding of non-modifiable and behavioural risk determinants.

Furthermore, statistical analysis revealed significant associations between knowledge scores and key sociodemographic variables. Higher educational attainment, urban residence, and male gender were significantly associated with better knowledge, whereas age did not show a significant association. These findings also highlight the persistent differences in health literacy across different population subgroups.

Focused interventions, particularly those aimed at rural populations, women, young adults and individuals with limited educational attainment, are essential to elevate awareness and promote early prevention of non-communicable diseases. Embedding structured, culturally sensitive health promotion efforts within the framework of existing primary healthcare services holds significant potential to bridge these knowledge gaps. Such an approach not only empowers communities through informed health choices but also develops sustainable behavioural transformation at the individual level.

Ethical Considerations: Before the commencement of the study, Institutional ethics permission was taken.

Recommendations

This study sparks the need for targeted health education focusing on improving awareness of both modifiable and non-modifiable risk factors of diabetes and hypertension, especially in rural and low-literacy populations.

Integration of preventive education into routine primary care is essential for promoting sustained behavioural change. After all, healthy habits today lead to a disease-free tomorrow.

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