

Association of tobacco and alcohol consumption with hypertension among Hindu priests in Central India



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ABSTRACT

Background: Alcohol and tobacco use are among the major risk factors for causing hypertension in the adult population globally as well as in India. India being a religious country harbor's large number of Hindu temples which are conventionally managed by a dedicated population of Hindu priests. The prevalence of alcohol and tobacco use in this special population of priests in India is not well established along with the associated risk of hypertension. **Aims and Objectives:** First, to study the pattern of use of habit-forming substances; tobacco, alcohol, and cannabis derivatives among priests in central India. Second, to find the relationship between the use of tobacco smoking, chewing, and alcohol with hypertension. **Materials and Methods:** The current study is a cross-sectional survey on Hindu priests of registered temples of a Pilgrimage city in Central India. The study utilizes a pre-tested semi-structured questionnaire for interviewing 440 study participants. It included a sociodemographic profile, history of use of habit-forming substances, the presence of known hypertension, and measurement of blood pressure. **Results:** Out of 440 study participants; 280 (63.6%) were currently using habit-forming substances, whereas 160 (36.4%) number of participants had never used it. The current study found the prevalence of hypertension to be 31.9%. A statistically significant relationship of hypertension with the use of alcohol ($\chi^2 = 44.2$), tobacco chewing ($\chi^2 = 106.1$), and smoking ($\chi^2 = 74.3$) was found. **Conclusion:** The current study concludes that the use of Habit-forming substances, especially alcohol, tobacco chewing, and smoking, are prevalent among priests which are known risk factors for hypertension in the general population. Hence all screening/interventions applicable for these risk factors should be applied to this special population of priests.

Key words: Priest; Alcohol; Tobacco; Hypertension

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INTRODUCTION

India being a religious country harbors a large number of temples which are conventionally managed by a dedicated population of "Priests." The priest word is derived from the Greek word presbyteros meaning elderly or senior.¹ Hindu priests are also called pujaris; the word pujaris is derived from the Sanskrit word puja meaning worship; hence they are the person performing temple rituals such as puja, aarti, and religious offerings.² The religious offering mostly includes cooked food, fruits, sweets, and some vegetarian items. Sometimes the offering is in the form of meat, fish,

liquor, and bhang. The liquor is offered to the religious deity of Kal Bhairav mandir in central India.³

Besides alcohol being a religious offering, it is also one of the most consumed societal habit-forming substances (14.6% in India)⁴ accepted legally in most part of India only next to tobacco use (28.6%).⁵ The prevalence of alcohol and tobacco use in this special population of priests in India is not well established. Moreover, few studies on the use of alcohol and tobacco have been done on priests in foreign countries and religions other than Hinduism. These available studies indicate a prevalence of tobacco

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use of 13.9%⁶ and alcohol use of 10–12% among the priest population.⁷

Alcohol and tobacco use are among the major risk factors for causing hypertension in the adult population globally as well as in India.⁸ Hypertension is a well-known and widespread chronic health problem affecting approximately 32.5% of adults aged 15 years and above.⁹ It may lead to many complications not limited to the cardiovascular system only but also affect other systems such as renal, neuro-vascular, peripheral vascular, etc. It has many risk factors contributing to its burden, namely, non-modifiable age and gender to many modifiable factors including alcohol and tobacco use.

The current study with this premise attempts to find the pattern of use of habit-forming substances among Hindu priests with their possible relationship to hypertension; which is a prevalent problem in Indian adults.

Aims and objectives

Thus, the aims and objectives of the current study are as follows: First, to study the pattern of use of habit-forming substances; tobacco, alcohol, and cannabis derivatives among priests in central India. Second, to find the relationship between the use of tobacco smoking, chewing, and alcohol with hypertension.

MATERIALS AND METHODS

The current study is conducted among Hindu priests of registered temples in a pilgrimage city of central India. The study was done over 6 month period. All registered Hindu priests of the registered temple who provided informed consent were considered for inclusion in the current study. Those who were having chronic diseases with known causes of secondary hypertension such as cardiovascular diseases, renal hypertension, hypertension secondary to cerebral vascular accidents, etc. were excluded from the study.

Sampling

First, a list of all the eligible registered temples along with their registered priests was prepared. There were a total of 327 registered temples along with 1032 registered priests working in it. The exact prevalence of the use of habit-forming substances among Hindu priests was not known. Hence, it was assumed to be 50%. A total of 440 priests were selected using a random number table from the list of all registered priests; considering 5% absolute precision with 95% confidence limit, a non-response rate of 10%.

The sample size was calculated by the formulae $1.96 \times PQ/L^2$. Where P is the prevalence of use of habit-forming substance, $Q=1-P$, L=absolute precision. The

calculated sample size was 384 with adding non-response rate of 10%, the sample size was 422, and rounding it up to 440. A simple random sampling technique was applied using computer-generated random numbers; 440 priests were selected from the list of registered priests.

Methodology

Step 1: After planning the study, approval was obtained from the Ethical and Research Guidance Committee of the Institute

Step 2: Permission was taken from the collectorate office for the conduction of the study. It was preceded by obtaining baseline information about the number of temples and officially registered priests from the same office

Step 3: Sampling was done using the sampling technique described in the sampling section described previously

Step 4: A semi-structured, pre-tested questionnaire was prepared for the cross-sectional survey which included a sociodemographic profile, history on use of habit-forming substances, presence of known hypertension, and measurement of blood pressure

Step 5: A prior appointment was obtained by telephonic communication before the field base survey

Step 6: An interpersonal interview and administration of a questionnaire were conducted after taking written informed consent from each of the study participants

Step 7: Questionnaires were checked for completeness and correctness before entering into the Datasheet.

Measurement of blood pressure

Blood pressure was measured using the same sphygmomanometer in a sitting position by taking two readings on two different occasions. Hypertension is diagnosed when the average systolic blood pressure is 140 mmHg or higher, or when the average diastolic blood pressure is 90 mmHg or higher, taken on different occasions.¹⁰

Analysis and statistical consideration

Data were entered in a spreadsheet; frequencies were counted; and percentages were calculated for different variables. 2×2 tables were prepared for appropriate variables. Association between variables was tested using the Chi-square test namely use of tobacco smoking, chewing, and alcohol with hypertension.

Ethical consideration

The aims and objectives of the study were explained to the participants, and written informed consent was

obtained from each participant. Participants were assured that participation in the study was voluntary and the confidentiality of the information obtained was maintained. The study was purely questionnaire-based and did not affect the treatment or routine of participants (IEC Ref No.374). The latest updated Principles of Helsinki’s declaration was followed throughout the study.

RESULTS

Out of 440 study participants; 280 (63.6%) were currently using habit-forming substances, whereas 160 (36.4%) number of participants had never used it. Out of the total 280 study participants; currently using habit-forming substances, a maximum of 120 (27%) were chewing tobacco, followed by smoking 60 (14%), bhang 55 (13%), and alcohol 45 (10%) (Figure 1).

Among 280 (age 52.3 ± 18.4 years) study participants using habit-forming substances, it was observed that 160 (age 66 ± 5 years) participants were from the geriatric age group whereas 120 (42 ± 11 years) participants belonged to non-geriatric age group (Figure 2).

It was seen that drinking bhang and chewing tobacco was higher in the geriatric age group people, whereas non-geriatric age group was more indulged in drinking alcohol and smoking tobacco.

In the current study, 140 priests among 440 study participants were found hypertensive (31.9%). The current study found a relationship between hypertension and with use of alcohol, tobacco chewing, and smoking to be statistically significant (Table 1). Thus, the use of habit-forming substances such as alcohol, tobacco chewing, and smoking is strongly associated with hypertension as per the findings of the current study.

DISCUSSION

This study addresses a significant and understudied issue: The use of habit-forming substances among priests in central India. The findings reveal that a substantial majority, of participants, currently use such substances.

An exhaustive literature search does not reveal any research article addressing the problem of alcohol use among the special population of priests. Among the very few published newspaper articles surmise the prevalence of alcohol use is between 10% and 12% or even higher based on the expert views covered by these articles.^{7,11} These assumptions/expert views are in alignment with the findings of the current study.

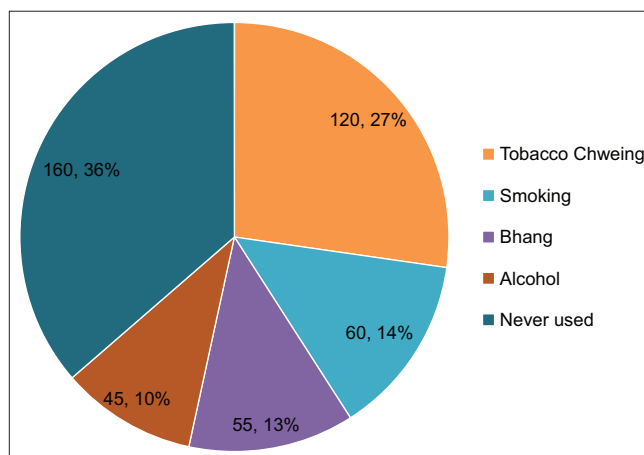


Figure 1: Distribution of study participants according to the use of various habit-forming substances

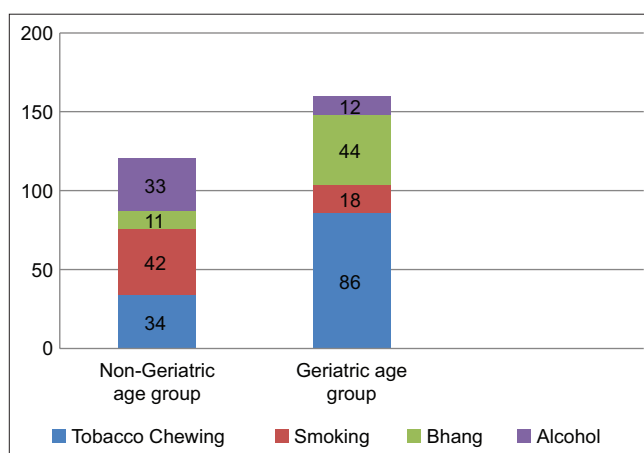


Figure 2: Distribution of study participants according to the use of various habit-forming substances in non-geriatric (<60 years) and geriatric (>60 years) age groups

There is also a scarcity of published research articles with findings pointing prevalence of tobacco use among this special population of priests. In a study conducted among 138 Polish priests age 20–92 years to find the prevalence of tobacco smoking; the proportion of current smoking was 13.9%.⁶ In another study of caries and periodontal experiences among 998 priests and novices in Bangkok; it was found that 14.1% were smokers among them.¹² Furthermore; a study on eye health issues among priests in Bangkok also reveals a similar percentage of smokers, that is, 13.7%.¹³

A study of tobacco use in north India among urban and rural populations revealed smokeless tobacco use of 31.08% among its participants.¹⁴ Similarly, a study analyzing the data of the fourth round of the National Family Health Survey (NFHS) reported a prevalence of 29.09% among the male participants.¹⁵ A comparative analysis with these prior research studies shows that the prevalence of tobacco

Table 1: Relationship of hypertension with the use of alcohol, smoking, and tobacco chewing

Habit-forming Substances	Hypertensive	Non-hypertensive	Total	Chi-square test static	
				χ^2	P-value
Currently drink alcohol	34	11	45	44.2	<0.00001
Never drunk alcohol	106	289	395		
Currently smoke tobacco	48	12	60	74.3	<0.00001
Never smoked tobacco	92	288	380		
Currently chew's tobacco	83	37	120	106.1	<0.00001
Never chewed tobacco	57	263	320		

chewing in the current study is in congruence with that of the prevalence of these studies.

In a study using data from NFHS, to find the prevalence of hypertension among 15–54-year-old Indian men; it was found that alcohol consumption is among the significant characteristics associated with hypertension.¹⁶ In another population-based study of the relationship between alcohol drinking patterns and to risk of hypertension conducted among adults age 35–80 years; it was found that heavy alcohol drinking is significantly associated with hypertension.¹⁷ A dose-response meta-analysis of non-experimental cohort studies of alcohol intake and blood pressure levels suggested a linear association between systolic blood pressure and alcohol intake.¹⁸ There are several other studies which reports either association of alcohol intake with hypertension or alcohol as a risk factor for hypertension.^{8,19-21} The findings of the current study reflect this same association in the priest population.

A recent study utilizing NFHS-4 data for finding the relationship between tobacco smoking and blood pressure concludes smoking to be a modifiable risk factor for hypertension.²² A cohort study based on 13,529 middle- and old-aged men concluded that smoking tobacco is an important risk factor for hypertension.²³ Moreover, smoking as a risk factor for hypertension is extensively studied in the Indian population in many studies.²⁴ The finding of the current study also suggested a relationship between tobacco smoking and hypertension. Furthermore, the current study also showed that smokeless tobacco consumption was associated with an increased prevalence of high blood pressure which was similar to the results of many studies focusing on this association.^{21,25,26}

Thus, this study highlights health risks associated with the consumption of these habit-forming substances, particularly the increased prevalence of hypertension linked to tobacco and alcohol consumption.

This study provides critical insights into a pressing issue among priests in central India, emphasizing the urgency of targeted interventions and further research to mitigate

substance use and its associated health consequences in this community.

Limitations of the study

The current study focuses only on Hindu priests as taking all the priests from other religions was not found to be feasible due to constrained resources and setting for the study. Moreover, the study is a cross-sectional survey; making it less informative regarding the extrapolation of association found into risk prediction; which in turn allows this study to serve as scaffolding for further inquiry using a more concentrated research method in the forthcoming time.

CONCLUSION

The current study concludes that the use of Habit-forming substances, especially alcohol, tobacco chewing, and smoking are prevalent among priests which are known risk factors for hypertension in the general population. Hence, all screening/interventions applicable for these risk factors should be applied to this special population of priests.

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