

Pattern of Alcohol Consumption among Government Employees in Thimphu, Bhutan

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Abstract

➤ Background

Alcohol consumption is one of the most common health risk behaviors which is a leading cause of various health problems and even to death globally. Excess alcohol use results in 2.5 million deaths every year. Around 320,000 young people aged between 15 and 29 years die from alcohol-related causes, resulting in 9% of all deaths in that age group. At the country level, this ranges from 0.5 to 5% of the population. This study was carried out to identify the pattern of alcohol consumption among government employees in Thimphu, Bhutan.

➤ Methods

The study design was a cross-sectional study. Purposive sampling method was used for sampling to choose the study area. Data collection was carried out by face to face interview of the total of 385 participants. The respondents were screened using the standard AUDIT screening procedure formulated by WHO. After that the respondents who were eligible for the face to face interview were interviewed with proper written informed consent. SPSS software version 22 was used for descriptive statistics and chi-square test.

➤ Results

Among 385 respondents who consumed alcohol, they were ranked into three categories based on their AUDIT (according to WHO guideline) scores namely Low risk drinkers (Score 0-7), Hazardous drinkers (Score 8-15) and Dependence (Score 16-19). The highest number of females fell under the category of low risk drinkers which was 179(90.9%) and males were 135(71.8%). Maximum number of males were hazardous drinkers which was 52(27.7%) and females were 18(9.1%). Only one male fell under the category of dependence which was 1(0.5%).

➤ Conclusion

Six types of alcoholic beverages are commonly used in Bhutan. Among them beer was the most preferred alcohol by males and wine was mostly consumed by females. Age, gender, marital status, annual income, work experience, age at first drink, expenses on alcohol, health problems, type and amount of alcohol consumed in lifetime, type, amount and frequency of alcohol consumed in last year and type of alcohol consumed in

last 30 days by respondents were significantly associated with pattern of alcohol consumption with p value<0.001.

Keyword:- Pattern, Alcohol Consumption, Government Employees, Thimphu, Bhutan.

I. INTRODUCTION

Alcohol can be defined as ethyl alcohol which can be produced by fermentation or distillation of grains, seeds and fruits. There are a plenty of varieties of alcohol around the globe. However, the hazards and consequences of alcohol cannot be ignored. More than 3 million people died as a result of harmful consumption of alcohol in 2016. This represents 1 in 20 deaths worldwide. Majority of the deaths comprised of men, which represented more than three quarters of the total number of deaths. An overall of more than 5% of the global disease burden were due to the harmful consumption of alcohol(1).

Around 2.5 million people die each year due to alcohol-related causes all over the globe(2). As already know, alcohol plays a significant role into the contribution of deaths, injury and disease globally(3). Three quarters of the world's population display a definitive five-year trend in recorded consumption. Regional estimates suggest a steady consumption trend in most of the regions, while an increase can be noted in the African Region and the South-East Asia which is a comprehensive information system that includes data on more than 200 alcohol-related indicators, it consists of data and information which are arranged under a huge seven category which contain a number of indicators chosen to assess the alcohol situation in WHO Member States in relation to public health. These seven categories are: alcohol production and availability; levels of consumption; patterns of consumption; harms and consequences; economic aspects; alcohol control policies; and resources for prevention and treatment(4).

In the year 2005, the total per capita consumption of alcohol beverages worldwide equaled 6.13 liters of pure alcohol consumed by every person aged 15 years or older. Maximum number of this percentage of consumption, which is 28.6% or 1.76 liters per person – was homemade and illegally produced alcohol or unrecorded variety of alcohol(5). The consumption of homemade or illegally produced alcohol is always linked with several harmful consequences because of various impure or crude chemicals used while brewing the alcohol causing significant harm. There is an existence of a large variation

in adult per capita consumption of alcohol. There is a huge number of alcohol consumption levels worldwide, mostly in the Northern Hemisphere, but also in Argentina, Australia and New Zealand. Moderately less consumption levels can be found in southern Africa, with Namibia and South Africa having the highest levels, and in North and South America. Low consumption levels can be found in the countries of North Africa and sub-Saharan Africa, the Eastern Mediterranean region, and southern Asia and the Indian Ocean. The reason for this is because of the maximum number of population practicing Islam religion which bars them not to practice the habit of alcohol consumption (6).

Bhutan also has alcohol consumption strongly linked to the culture and norms; the per capita alcohol consumption seems lower when compared to other Asian countries. The most abstinent countries are the Muslim countries, where the consumption and sale of alcohol is restricted.(7). Ara and bangchang (Local Bhutanese homebrewed alcohol) are the most salient drinks in Bhutanese society typically in the urban areas where they have little excess to other alcoholic beverages. The total alcohol consumption (ara, bangchang, rum, whisky and wine) was 11.95 million liters in 2003 and about 12.03 million liters in 2007. There was an increase in the total alcohol consumption in 2007 when compared to that of 2003 which was around 0.08 million liters more(8). The ban on alcohol in Bhutan could not be initiated because firstly the use of alcohol is strongly engrained in the Bhutanese culture, secondly it was beyond measures to have a society where no one would drink and thirdly there has been various benefits from moderate use of alcohol based on 'social lubricants effects theory'(9).

Bhutan's health care system could face a huge financial burden in the long run owing to the cost of treatment of alcohol-dependent cases. For an alcohol dependent case, the average cost for health and medical facilities was estimated to be as high as Nu. 120,000, while the cost for alcohol-dependent rehabilitation was Nu. 48,000 per case(10). Therefore this study aimed to assess the pattern of alcohol consumption among Government employees in Thimphu, Bhutan and to get the information about the alcohol consumption in that population.

II. METHOD AND MATERIALS

This study was a cross-sectional study conducted among government employees in Thimphu, Bhutan. The total number of respondents in this study was 385 and it was calculated by Krejcie Morgan formula. The structured questionnaires were used to collect data which included Socio-demographic, Assessment of pattern of alcohol consumption and (Screening) - Alcohol Use Disorders Identification Test (AUDIT). For the personal information in the questionnaires, the code number for each answer paper was used to keep the confidentiality of the respondents.

The socio-demographic questionnaires included factors like age, gender, residence, marital status, religion, education, occupation, income and the number of alcohol consumers among the family members and friends. For assessment of pattern of alcohol consumption, questionnaires included type, amount and frequency of alcohol consumption. The AUDIT questionnaire was used to assess the alcohol related disorders of the respondents. It contains 10 questions to assess alcohol consumption, dependence and alcohol use disorders. Q 1 to 3 are for alcohol consumption; Q 4 to 6 are for alcohol dependence and Q 7 to 10 are for alcohol-related problems. A score of 8 or more in males and 7 in females show a strong likelihood of hazardous or harmful alcohol consumption. A score of more than 20 is suggestive of alcohol dependence.

III. DATA ANALYSIS

The questionnaire was checked and coded before entering data in spss. Data analysis were processed by using SPSS software version 22 (licensed from Chulalongkorn University) for windows. Descriptive statistics was used to describe the socio-demographic factors, characteristics and the pattern of alcohol consumption of the study population. For the relationship between the variables, Chi-square tests was used to determine the statistical significance of the association between variables of dependent (pattern of alcohol consumption) and independent (socio-demographic) factors.

IV. RESULTS

Among 385 respondents who consumed alcohol, they were ranked into three categories based on their AUDIT (according to WHO guideline) scores namely Low risk drinkers (Score 0-7), Hazardous drinkers (Score 8-15) and Dependence (Score 16-19). The highest number of females fell under the category of low risk drinkers which was 179(90.9%) and males were 135(71.8%). Maximum number of males were hazardous drinkers which was 52(27.7%) and females were 18(9.1%). Only one male fell under the category of dependence which was 1(0.5%). There was significant association between age, gender and marital status of the respondents and pattern of alcohol consumption with p-value of <0.001 for all the three variables. The annual income (in USD) and work experience (in years) of the respondents had significant association with pattern of alcohol consumption with p-value of <0.001 for both the variables. The age at first drink of the respondents had significant association with pattern of alcohol consumption with p-value <0.001.

The expenses for alcohol in a month (in USD) and health problems diagnosed by doctor of the respondents had significant association with pattern of alcohol consumption with p-value <0.001 for both variables. Type and amount of alcohol consumed by respondents in lifetime had significant association with pattern of alcohol consumption with p-value <0.001. Type, amount and frequency in times per month of alcohol consumption by

respondents in last year had significant association with pattern of alcohol consumption with p-values <0.001 for all the variables. Type of alcohol consumed by respondents in

last 30 days had significant association with pattern of alcohol consumption with p-value <0.001,

Variables	Male n=188 n (%)	Female n=197 n (%)
Age		
<25 years	17(9)	18(9.1)
25-45 years	149(79.3)	169(85.8)
>45 years	22(11.7)	10(5.1)
Marital status		
Single	86(45.7)	96(48.7)
Married	68(36.2)	68(34.5)
Divorced	25(13.3)	27(13.7)
Widowed	9(4.8)	6(3)
Residence		
Babesa	74(39.4)	71(36)
Changdephu	21(11.2)	27(13.7)
Decheling	11(5.9)	8(4.1)
Motithang	72(38.3)	82(41.6)
Upper market	10(5.3)	9(4.6)
Religion		
Buddhism	141(75)	118(59.9)
Hinduism	30(16)	55(27.9)
Christianity	17(9)	24(12.2)
Variables	Male n=188 n (%)	Female n=197 n (%)
Education		
Primary school	4(2.1)	5(2.5)
Middle school	9(4.8)	11(5.6)
High school	26(13.8)	21(10.7)
Degree and higher	149(79.3)	160(81.2)
Annual income in USD		
Lower middle income	121(64.4)	149(75.6)
Upper middle income	67(35.6)	48(24.4)
Job experience in years		
<10 years	126(67)	147(74.6)
10-20 years	47(25)	46(23.4)
>20 years	15(8)	4(2)
1 USD=71.6 Ngultrums		

Table 1:- Age, gender, marital status, residence, religion, education, income in USD and work experience in years of respondents (n=385)

Table 1 shows that among the 385 respondents, there were 197 females and 188 males. Those who were < 25 years were quite similar for both males (9%) and females (9.1%). The maximum number of respondents were females (85.8%) in between the age of 25-45 years than males (79.3%). Those > 45 years had twice as higher males (11.7%) than females (5.1%). The number of females (48.7%) who were single was the highest which was slightly higher than males (45.7%). The highest number of females (41.6%) resided in Motithang, while the highest

number of males (39.4%) resided in Babesa. The highest number of respondents who followed Buddhism were males (75%) than the number of females (59.9%). Maximum number of respondents were females (81.3%) who attended degree and higher level of education which was slightly higher than males (79.3%). Highest number of females (75.6%) fell under the category of lower middle income than males (64.4%). Work experience less than 10 years had more females 74.6% than males (67%).

Variables	Category	Male n=188 n (%)	Female n=197 n (%)
AUDIT Score of Respondents	Low risk drinkers	135(71.8%)	179(90.9%)
	Hazardous drinkers	52(27.7%)	18(9.1%)
	Dependence	1(0.5%)	0
Age at first drink	18 - 25 years	114(60.6%)	101(51.3)
	26 - 45 years	74(39.4%)	96(48.7%)
Reasons for consumption for first time	Friends	8(4.3%)	11(5.6%)
	Socialization	50(26.6%)	64(32.5%)
	Festival	20(10.6%)	17(8.6%)
	Family problems	52(27.7%)	53(26.9%)
	Financial problems	10(5.3%)	11(5.6%)
	No specific reason	48(25.5%)	41(20.8%)
Expenses on alcohol in a month	<100 USD	181(96.3%)	197(100%)
	100 - 200 USD	7(3.7%)	0
Health Problems	No	173(92%)	186(94.4%)
	Yes	15(8%)	11(5.6%)

Table 2:- Alcohol Consumption by Respondents (n=385)

Table 2 shows that among 385 respondents who consumed alcohol, they were ranked into three categories based on their AUDIT(according to WHO guideline) scores namely Low risk drinkers(Score 0-7), Hazardous drinkers(Score 8-15) and Dependence(Score 16-19). The highest number of females fell under the category of low risk drinkers which was 90.9% and males were 71.8%. Maximum number of males were hazardous drinkers which was 27.7% and females were 19.1%. Only one male fell

under the category of dependence which was 0.5%. The age at first drink between 18-25 years showed more males(60.6%) than females(51.3%). Highest number of females showed socialization as the reason for first alcohol consumption which was 32.5% and males were 26.6%. All of the females fell under the category of spending less than 100 USD per month on alcohol which was 100% and males were 96.3%. The males who had health problems were 8% and females were 5.6% which was also quite similar.

Variables	Low risk drinkers n=314 n(%)	Hazardous drinkers n=71 n(%)	p-value
Age			
<25 years	33(10.5)	2(2.9)	<0.001
25-45 years	271(86.3)	47(67.1)	
>45 years	10(3.2)	22(30)	
Gender			
Male	135(43)	53(74.3)	<0.001
Female	179(57)	18(25.7)	
Marital status			
Single	166(52.9)	16(22.9)	<0.001
Married	102(32.5)	34(47.1)	
Divorced	38(12.1)	14(20)	
Widowed	8(2.5)	7(10)	
Address			
Babesa	118(37.6)	27(38.6)	0.265
Changadephu	39(12.4)	9(12.9)	
Decheling	12(3.8)	7(10)	
Motithang	127(40.4)	27(37.1)	
Upper market	18(5.7)	1(1.4)	
Religion			
Buddhism	203(64.6)	56(78.6)	0.142
Hinduism	76(24.2)	9(12.9)	
Christianity	35(11.1)	6(8.6)	
Variables	Low risk drinkers n=314 n(%)	Hazardous drinkers n=71 n(%)	p-value
Educational status			
Primary school	8(2.5)	1(1.4)	0.991
Middle school	17(5.4)	3(4.3)	
High school	39(12.4)	8(11.4)	
Degree and higher level	250(79.6)	59(82.9)	
Annual income			
Lower middle	239(76.1)	31(44.3)	<0.001
Uppermiddle	75(23.9)	40(55.7)	
Work experience			
<10 years	243(77.4)	30(42.9)	<0.001
10-20 years	66(21)	27(37.1)	
>20 years	5(1.6)	14(20)	

Table 3:- Association between age, gender, marital status, address, religion, educational status, annual income and work experience of respondents

Table 3 shows that there was significant association between age, gender and marital status of the respondents and pattern of alcohol consumption with p-value < 0.001 for all the three variables. The address and religion of the respondent had no significant association between the pattern of alcohol consumption with p-value >0.001.

Educational status of the respondents had no significant association with the pattern of alcohol consumption with p-value of >0.001. The annual income (in USD) and work experience (in years) of the respondents had significant association with pattern of alcohol consumption with p-value of <0.001 for both the variables.

Variables	Low risk drinkers n=314 n(%)	Hazardous drinkers and Dependence n=71 n(%)	p-value
Age at first drink			
18-25 years	186(59.2)	29(41.4)	<0.001
26-45 years	128(40.8)	42(58.6)	
Reason for alcohol consumption			
Friends	16(5.1)	3(4.3)	0.682
Socialization	95(30.3)	19(25.7)	
Festival	28(8.9)	9(12.9)	
Family problems	81(25.8)	24(34.3)	
Financial problems	18(5.7)	3(4.3)	
No specific reason	76(24.2)	13(18.6)	
Expenses on alcohol			
<100 USD	314(100)	64(90)	<0.001
100-200 USD	0	7(10)	
Health problems diagnosed by doctor			
No	303(96.5)	56(78.6)	<0.001
Yes	11(3.5)	15(21.4)	

Table 4:- Association between characteristics of alcohol consumption and pattern of alcohol consumption of respondents

Table 4 shows that age at first drink of the respondents had significant association with pattern of alcohol consumption with p-value <0.001. The reason for alcohol consumption had no significant association with pattern of alcohol consumption with p-value > 0.001 The expenses for alcohol in a month (in USD) and health problems diagnosed by doctor of the respondents had significant association with pattern of alcohol consumption with p-value <0.001 for both variables.

V. DISCUSSION

This study was conducted among the government employees under His Majesty's Government in Thimphu, Bhutan. Among 385 respondents who consumed alcohol within lifetime, the highest number of males consumed beer which was 102(54.3%) and females were 54(27.4%). Another study showed the same results in which beer was the most common alcohol preferred(11).

Among 385 respondents who consumed alcohol, they were ranked into three categories based on their AUDIT (according to WHO guideline) scores namely Low risk drinkers (Score 0-7), Hazardous drinkers (Score 8-15) and Dependence (Score 16-19). The highest number of females fell under the category of low risk drinkers which was 179(90.9%) and males were 135(71.8%). Maximum number of males were hazardous drinks which was 52(27.7%) and females were 18(9.1%). Only one male fell under the category of dependence which was 1(0.5%). A study on alcohol consumption pattern among workers and socio-economic profile showed most females fell under low risk drinkers which was 66.9% and males were 33.1% whereas under high risk and dependence males were more which was 65.9% and females were 34.1%(12).

This study showed that the highest number of alcohol consumption was between the age of 25-45 years whereas another study showed highest alcohol consumption between the age of 45-64 years which is different to the

results in this study(13). Females who consumed alcohol were 197(51.2%) which was slightly higher than males which was 188(48.9%). This was different from another study in China which showed male drinkers were 76% and females were 36%(14). Highest number of females showed socialization as the reason for first alcohol consumption which was 64(32.5%) and males were 50(26.6%) which was similar to another study conducted at Auburn University(15). The annual income (in USD) and work experience (in years) of the respondents had significant association with pattern of alcohol consumption. A study on the relationship between alcohol use and earnings, showed that the more people earned, the more money they spent on alcohol consumption(16).

Marital status had significant association with pattern of alcohol consumption. A study on associations between marital status and alcohol consumption in a longitudinal study of female twins, showed that marital status was associated with a large proportion of the decline in consumption prior to age 30. Women who later divorced drank more than women who stayed married and divorced women who remarried drank less than divorced women who did not remarry(17). Age at first drink had significant association with pattern of alcohol consumption. A study on relation between age at first drink and adult life drinking patterns in alcohol-dependent patients revealed that age at first drink had its influence on later life drinking patterns(18). Health problems diagnosed by doctor had significant association with the pattern of alcohol consumption. An article on Adolescent alcohol use: Risks and consequences showed that massive alcohol consumption during late adolescence tends to persist into adulthood and is highly associated with alcohol consequences like dependency, decreased work capacities and even death. Therefore an early detection of these risk factors would be beneficial in prevention and decreasing the consequences related to alcohol consumption(19)

VI. CONCLUSION

This study assessed the pattern of alcohol consumption among government employees in Thimphu, Bhutan. Six types of alcoholic beverages are commonly used in Bhutan. Among them beer was the most preferred alcohol by males and wine was mostly consumed by females. It showed that females consumed more alcohol than males in lifetime. There was significant association between age, gender marital status, annual income (in USD) and work experience (in years) of the respondents and pattern of alcohol consumption. Similarly, age at first drink, the expenses for alcohol in a month (in USD) and health problems diagnosed by doctor of the respondents had significant association with pattern of alcohol consumption. Type and amount of alcohol consumed by respondent in lifetime had significant association with pattern of alcohol consumption. Type, amount and frequency in times per month of alcohol consumption by respondents in last year had significant association with pattern of alcohol consumption. Type of alcohol consumed

by respondent in last 30 days had significant association with pattern of alcohol consumption.

RECOMMENDATION

Based on the results of this study the following recommendation could be considered:

- *The policy makers can take necessary action to reduce the situation of alcohol consumption among government employees in Thimphu, Bhutan.*
- *There can be reduction of sales of alcohol impicated by the government.*
- *Also various campaigns and banners regarding the ill-consequences of alcohol consumption can be put up through media and various other resourses.*
- *Taxes on alcohol can be increased and sales of alcohol could be restricted at certain hours of the day.*
- *Further research on the pattern of alcohol consumption in various other sectors like private, corporate and non-government instituions can also be initiated.*

Disclosure of Interest: The authors declare that they have no conflict of interest.

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