

How and What are Indians Drinking? Findings from the National Family Health Survey

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Abstract

Aims: To assess recent changes in the extent and pattern of alcohol use in India using the National Family Health Survey (NFHS) data.

Methods: We used unit-level data from both rounds of NFHS. The pattern of alcohol use was categorized as: 'almost every day', 'almost once a week' and 'less than once a week'. The information was segregated for the urban and rural settings. Information was also available on the type of alcoholic beverage used by the respondents. The z test for differences in proportions was carried out for the study variables.

Results: Findings suggest a 22.37 and 39.02% reduction in the proportion of men and women who reported alcohol use, respectively. The proportion of men reporting 'almost every day' and 'about once a week' consumption of alcohol increased by 24.19 and 7.14%, respectively.

Conclusions: With the caveats of expected limitations of surveys, the findings suggest an overall decrease in alcohol use in India, though the proportion of men with more frequent alcohol has increased. There is a need to strengthen the investment in the initiatives targeted at the harms due to alcohol use.

INTRODUCTION

Alcohol use-related harm is a major public health concern (Griswold *et al.*, 2018). The burden due to alcohol use is greater in developing countries (Shield and Rehm, 2021). In addition, the patterns of alcohol use among Indians, including high per-capita consumption among the drinkers and high prevalence of heavy episodic drinking, further add to the harm (WHO, 2018).

Despite its public health importance, the change in the extent and pattern of alcohol use in India has not been studied and documented systematically. Such information is of great value not only to document the changing patterns and trends over the past years but also to plan the policy and programs aimed at addressing the harms related to alcohol use in the future.

The National Family Health Survey (NFHS) of India offers a valuable and unique data set that captures information on different health variables using a nationally representative sample from across the country (International Institute for Population Sciences and ORC Macro, 2000). Also, since the fourth (2015–2016) and fifth (2019–2021) rounds of the survey have used a comparable methodology, it offers an opportunity to make comparisons between the two data sets. We aimed to explore the change in extent and pattern of

alcohol use in India over the course of 4.5 years (between 2015 and 2019).

METHODOLOGY

Sample description

The NFHS-5 and NFHS-4 data were collected from all the states and union territories of India. Information was collected from 724,115 women and 101,839 men for NFHS-5 and from 699,686 women and 112,122 men for NFHS-4. The response rate among men in both rounds was 92%, whereas among women it was 97%.

For both NFHS-5 and NFHS-4, the rural sample was selected through a two-stage sample design with villages as the Primary Sampling Units at the first stage. These were selected with probability proportional to size, followed by a random selection of 22 households in each Primary Sampling Unit at the second stage. In urban areas, there was also a two-stage sample design with Census Enumeration Blocks selected at the first stage and a random selection of 22 households in each Census Enumeration Blocks at the second stage. In the second stage in both urban and rural areas, households were selected after conducting a complete mapping and household listing operation in the selected first-stage units. The samples

Table 1. Pattern of alcohol use among men and women who reported alcohol use in NFHS-5 and NFHS-4

	Urban				Rural				Total			
	NFHS-5	NFHS-4	Z value	P value	NFHS-5	NFHS-4	Z value	P value	NFHS-5	NFHS-4	Z value	P value
Women												
Alcohol use	0.42	0.71	11.9	<0.0001	0.90	1.51	28.6	<0.0001	0.75	1.23	29	<0.0001
Almost every day	11.3	12.4	1.1	0.269	18.1	19.3	2.5	0.013	16.9	17.9	2.3	0.021
About once a week	25.6	22.4	2.5	0.013	39.0	38.1	1.5	0.136	36.6	35.0	2.9	0.003
Less than once a week	63.1	65.2	1.4	0.151	42.9	42.7	0.3	0.744	46.6	47.2	1	0.294
Men												
Alcohol use	22.5	29.1	18.5	<0.0001	23.0	29.8	30.1	<0.0001	22.9	29.5	34.6	<0.0001
Almost every day	14.8	11.4	6.4	<0.0001	15.8	13.0	8.4	<0.0001	15.4	12.4	10.6	<0.0001
About once a week	44.7	41.4	4.2	<0.0001	42.9	40.0	6.2	<0.0001	43.5	40.6	7.2	<0.0001
Less than once a week	40.6	47.2	8.4	<0.0001	41.3	47.0	12.1	<0.0001	41.0	47.0	14.9	<0.0001

NFHS, National Family Health Survey The pattern of drinking has been presented for those who reported 'alcohol use'. The total of the three categories of pattern of drinking totals to 100%

were designed to provide estimates of all key indicators at the national and state levels, as well as estimates for most key indicators at the district level.

Variables of interest

We used unit-level data from both rounds of NFHS, and while deriving the estimates an appropriate sampling design was used with the help of the 'svy' command in STATA analytical software (StataCorp., 2017). Both rounds of the survey collected information on the proportion of men and women who reported alcohol use (using the Men's and Women's Questionnaire). NFHS-5 also enquired about the use of alcohol in the Household Questionnaire. The patterns of alcohol use were categorized as: 'almost every day', 'almost once a week' and 'less than once a week'. The information was segregated for the urban and rural settings. Information was also available on the type of alcoholic beverage used by the respondents.

Data analysis

The data were compiled using Microsoft Excel software. The χ^2 test for differences in proportions was carried out for the study variables. The analysis was carried out using the EpiTools-Epidemiological Calculators (Sergeant, 2018). A P -value of <0.05 was considered significant for all the comparisons.

RESULTS

Extent and pattern of alcohol use in NFHS-5

Among men, 22.9% of respondents reported alcohol use in NFHS-5. Of these, 15.4% used alcohol 'almost every day'. The proportion of those using alcohol 'about once a week' and 'less than once a week' was 43.5 and 41%, respectively. Among women, 0.75% of respondents reported alcohol use in NFHS-5. Of these 16.9% used alcohol 'almost every day'. Proportion of those using alcohol 'about once a week' and 'less than once a week' was 36.6 and 46.6%, respectively (Table 1).

In the age groups 15–19 years, 20–34 years and 35–54 years, 5.8, 22.7 and 29.4% of men reported alcohol use, respectively. In the age groups 15–19 years, 20–34 years and 35–49 years, 0.19, 0.61 and 1.18% of women reported alcohol use, respectively (Table 2).

On the Household Questionnaire, current alcohol use was reported to be 18.7% among men aged 15 years or more and 1.3% among women aged 15 years or more. The states

of Gujarat (at the time of both NFHS-4 and NFHS-5) and Bihar (at the time of NFHS-5), and the Union Territory of Lakshadweep (at the time of both NFHS-4 and NFHS-5) had prohibition of alcohol consumption. In Lakshadweep, 0.4% for men and 0% for women reported alcohol use. In the state of Bihar, 15.5% of men and 0.4% of women reported current use of alcohol. The proportions were 5.8 and 0.6% for men and women, respectively for Gujarat.

Change in extent, pattern and type of alcohol use from NFHS-4 to NFHS-5

There was a 22.37% ($P < 0.001$) reduction in the proportion of men who reported alcohol use in India in the NFHS-5 as compared with the NFHS-4. There was a significant reduction in the proportion of men reporting alcohol use in both urban (22.68%) and rural (22.81%) areas ($P < 0.001$ for both) (Table 1).

Among those who reported alcohol use, the proportion of those who used 'almost every day' and 'about once a week' increased by 24.19 ($P < 0.001$) and 7.14% ($P < 0.001$), respectively, in NFHS-5 as compared with NFHS-4. Also, the proportion of men who used 'less than once a week' decreased by 12.76% ($P < 0.001$) in NFHS-5 as compared with NFHS-4.

Proportion of men reporting alcohol use reduced in all age categories (34.83% for 15–19 years, $P < 0.001$; 27.24% for 20–34 years, $P < 0.001$; and 18.78% for 35–54 years <0.001) in NFHS-5 as compared with NFHS-4 (Table 2). There was a significant increase in the proportion of those reporting alcohol use on 'almost every day' and 'about once a week' and a significant reduction in the proportion of men reporting alcohol use 'less than once a week' for all age categories.

There was a 39.02% ($P < 0.001$) reduction in the proportion of women in India who reported alcohol use in the NFHS-5 as compared with the NFHS-4. Among those who reported alcohol use, there was a significant decrease of 5.58% ($P = 0.021$) in the proportion of women who reported alcohol use 'almost every day' and an increase of 4.57% ($P = 0.003$) in the proportion of women who reported alcohol use 'about once a week'. There was a significant reduction in the proportion of women reporting alcohol use in both urban (40.84%) and rural (40.39%) areas ($P < 0.001$ for both) (Table 1).

The proportion of women reporting alcohol use reduced significantly in all age categories (59.57% in 15–19 years,

Table 2. Pattern of alcohol use in NFHS-5 and NFHS-4 across different age groups

Women												
	15–19 years				20–34 years				35–49 years			
	NFHS-5	NFHS-4	Z value	P value	NFHS-5	NFHS-4	Z value	P value	NFHS-5	NFHS-4	Z value	P value
Alcohol use	0.19	0.47	12.1	<0.0001	0.61	1.05	19.9	<0.0001	1.18	1.87	20.1	<0.0001
Almost every day	6.3	13.8	4.5	<0.0001	12.8	15.8	4.7	<0.0001	20.4	20.0	0.6	0.526
About once a week	24.6	22.7	0.9	0.389	33.8	34.4	0.7	0.479	39.2	36.9	3	0.002
Less than once a week	69.1	63.5	2.2	0.024	53.3	49.8	3.9	<0.0001	40.4	43.1	3.5	0.0005
Men												
	15–19 years				20–34 years				35–54 years			
	NFHS-5	NFHS-4	Z value	P value	NFHS-5	NFHS-4	Z value	P value	NFHS-5	NFHS-4	Z value	P value
Alcohol use	5.8	8.9	11.1	<0.0001	22.7	31.2	28.5	<0.0001	29.4	36.2	21.5	<0.0001
Almost every day	4.3	2.7	2.4	0.017	10.8	8.9	5.2	<0.0001	19.7	16.5	7.4	<0.0001
About once a week	32.9	29.4	2	0.044	43.5	39.4	6.7	<0.0001	44.3	42.7	2.9	0.004
Less than once a week	62.9	67.9	2.8	0.005	45.7	51.7	9.7	<0.0001	36.0	40.8	8.8	<0.0001

NFHS, National Family Health Survey The pattern of drinking has been presented for those who reported 'alcohol use'.

$P < 0.001$; 41.90% in 20–34 years, $P < 0.001$; 36.89% in 35–49 years, $P < 0.001$) (Table 2).

There was a significant increase in proportion of individuals reporting use of 'tadi madi' ($P = 0.036$), country liquor ($P = 0.020$), beer ($P = 0.022$), wine ($P < 0.001$) and other alcoholic beverages ($P < 0.001$) in NFHS-5 as compared with NFHS-4 among men. There was a decrease in the proportion of men reporting the use of 'hard liquor' ($P < 0.001$).

There was a significant increase in the proportion of individuals reporting the use of country liquor ($P < 0.001$), beer ($P < 0.001$), 'hard liquor' ($P < 0.001$) and other alcoholic beverages ($P < 0.001$) in NFHS-5 as compared with NFHS-4 among women. There was a decrease in the proportion of women reporting the use of 'tadi madi' ($P < 0.001$) and wine ($P < 0.001$).

DISCUSSION

The findings of this study offer important insights into the change in the extent and pattern of alcohol use in India between the years 2015/2016 and 2019/2020.

First, there was a reduction in the proportion of Indians reporting alcohol use. The reduction was more among women. A similar trend in reduction was reported by an earlier study based on the report of the first phase of the NFHS-5 (Balhara *et al.*, 2022). We had previously commented on a lack of systematic evaluation of the policy and programs targeted at addressing harms associated with the use of alcohol. Due to the lack of such information, it is difficult to attribute the reduction in the proportion of Indians reporting alcohol use to one or more factors. There is a need to generate data on the effectiveness of the current programs and interventions.

Second, there was an increase in the proportion of men who reported use 'almost every day' among men. This was recorded across all age categories. This observation validates the caution that we expressed in our previous publication while interpreting the data available at that point in time (Balhara *et al.*, 2022). Over the years different surveys have reported that an overwhelmingly large proportion of Indians are classified as abstainers. As a corollary, the total alcohol

consumed in India is consumed by a relatively smaller proportion of the population. The Global Status Report on Alcohol and Health 2018 by WHO estimated a 38% increase in per-capita alcohol consumption among individuals aged 15 years and above in India during the period 2010–2017 (WHO, 2018). In fact, the total alcohol per-capita consumption (APC) among drinkers in India was high at 18.3 L and 6.6 L of pure alcohol, respectively, for men and women (aged 15 years or more). The average volume of alcohol consumption is a well-established contributor to the alcohol-associated burden of disease and injury (Rehm *et al.*, 2017). This is even more concerning given the projection that the APC in the country is likely to increase over the next couple of years (Anon, 2022). A decreasing trend in current drinkers that is not in keeping with the APC data from India has been reported in previous studies (Rastogi *et al.*, 2021). The increase in the proportion of men reporting 'almost daily use' is a concerning finding in this context. Although the NFHS does not capture data on alcohol use disorders, it can be inferred that given the pattern of drinking among men in India those who report almost daily use might be at greater risk of or are likely to have developed problematic patterns of alcohol use. These findings call for action to address the frequent use of alcohol among men across all age groups. There is a need to invest in both prevention-oriented and treatment-oriented interventions. The services for screening, early detection and intervention also need to be scaled up.

Third, not only there was a reduction in the proportion of women who reported alcohol use, but the proportion of those who reported alcohol use 'almost every day' was also reduced in NFHS-5. Alcohol use among women has been consistently reported to be relatively lower among Indian women (Lal *et al.*, 2015). However, the observations from NFHS data are not in keeping with the media reports of an increase in alcohol use among women in India (Anon, 2019) (Desai, 2020).

Fourth, the current use of alcohol was reported in the states with a prohibition on alcohol. However, it was lower than the national values.

The findings of this study should be interpreted in the context of certain limitations of the NFHS data set. First, it comments only on the 'alcohol use' and captures no details

on alcohol use disorder. Second, the primary objective of the NFHS is to provide essential data on health and family welfare and emerging issues in these areas. The sample size has been calculated accordingly. A larger number of female respondents were included as compared with men in both NFHS-4 and NFHS-5. However, NFHS offers a data set that is collected nationally, periodically and uses a comparable methodology. Third, we have some concerns about the way some of the types of alcoholic beverages were defined for the purpose of the survey. This concern stems from the observation that a large proportion of respondents reported the use of 'wine' which is not one of the most common forms of alcoholic beverage used in India. Fourth, concerns about underreporting of alcohol use in surveys have been expressed (Livingston and Callinan, 2015). The response rate among men in both rounds was 92%, whereas among women it was 97%. Although it was not uniform across different states and was relatively lower in some (for example Chandigarh in NFHS-4 and NFHS-5 and Delhi in NFHS-4), the response rate among men in both rounds was 92%, among women it was 97%. Fifth, NFHS captures information only on those aged 15 years or more. The age of initiation of alcohol in India was reported to be 13.6 years in a national survey among children and adolescents (Dhawan *et al.*, 2017). So, we could not comment on the trend of alcohol use among those aged < 15 years. Finally, the second phase of data collection for some states in NFHS-5 overlapped with the 40-day period of prohibition of alcohol sale in India during the COVID-19 pandemic. This is likely to have impacted the pattern of alcohol use. Despite these limitations, NFHS data are a valuable resource to comment on the change in the extent and pattern of alcohol use in India.

In conclusion, although there has been a reduction in the proportion of Indian men and women who reported alcohol use between NFHS-4 and NFHS-5, the increase in the proportion of men who reported alcohol use 'almost every day' is a finding that requires greater focus and intervention. There is a need to strengthen the investment in the initiatives targeted at the harms due to alcohol use.

CONTRIBUTIONS

Y.P.S.B. conceptualized the article. P.K.S. gathered the data. Y.P.S.B., A.C., S.S. contributed to analysis. Y.P.S.B., P.K.S.,

A.C., S.S., S.S. wrote the manuscript. All authors approved the final manuscript.

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