INDIAN ASSOCIATION OF EPIDEMIOLOGISTS

Epidemiology International
Volume 8, Issue 1 - 2023, Pg. No. 22-34
Peer Reviewed & Open Access Journal

Research Article

Assessment of Health-impacting Behaviours among Youth in Rural Karnataka

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DOI: https://doi.org/10.24321/2455.7048.202306

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How to cite this article:
Arvind BA, Rao GN, Pradeep BS, Saraswat N, Srivastava A, Roy A, Akashanand. Assessment of Health-impacting Behaviours among Youth in Rural Karnataka. Epidem Int. 2023;8(1):22-34.

Date of Submission: 2023-02-25
Date of Acceptance: 2023-03-27

A B S T R A C T

Background: Youth and youth development has received the much-needed attention in the state of Karnataka. However, a lack of comprehensive understanding of the various health-impacting behaviours among youth in the state and among rural youth, in particular, has been a barrier to developing effective evidence-based policies for them.

Methods: A cross-sectional study was undertaken exclusively among youths (16-30 years) in Srinivasapura taluk of Kolar district during 2017-2018. A stratified two-stage cluster sample with probability proportionate to population size (PPS) sampling technique was employed to interview 940 youths. Information on various health-impacting behaviours was collected using structured and standardised questionnaires.

Results: A considerable proportion of young people in the study area engage in one or more health-impacting behaviours. The prevalence of various health-impacting behaviours ranged from 0.1% for gambling-related activities to 99% for having less than five daily servings of fruits and/ or vegetables. Verbal or emotional abuse was the most common form of violence among youth in the study area. The risk of depression (0.40%) and anxiety (5.20%) was also common among study participants. Hazardous use and alcohol dependence among current alcohol users was 25.8% and 17.7% respectively.

Conclusion: Several health-impacting behaviours are commonly observed among youth in Srinivasapura taluk of Kolar district which is concerning and needs immediate attention. However, a more comprehensive study focusing on overall youth health and its determinants is recommended at the state level for effective programme and policy planning.

Keywords: Youth, Health, Health Impacting Behaviour, Rural Karnataka

Introduction

Globally, the interest in youth health has received the much-needed attention.[1] India is also committed to promoting the health and well-being of its young people through the National Youth Policy.[2] Generally, youths are considered to constitute a relatively healthy segment of the population and hence their health is overlooked with exceptions.[3] However, global data indicates that 1.8 million young people between the ages of 15 and 24 years die annually. Illness among youth considerably affects their life by hindering their capacity to grow and develop to their utmost potential. Many young people engage in activities that endanger their present and future health.[4] The state of Karnataka, in the southern part of India, has 2.1 crore youths (15-29 years) which constitute 1/3rd of the state's population.[5] Studies focused on youth health are scarce in the state. However, available data indicate that youth in Karnataka face several health issues. In 2021, 2157 young people in the age group of 18-25 years died due to road accidents, which is 21.5% of total road accident-related deaths in the state. Similarly, 3535 youths (18-30 years) died due to suicide in 2021, which is 28.7% of total suicide-related death (12317) in the state.[6] According to a report, a sizeable proportion of youths in Karnataka struggle with issues related to their health and lifestyle, safety, relationships, personalities, gender, sex, and sexuality.[7]

Realising that young people are vital for economic growth, the Karnataka Youth Policy was implemented in 2012 and was recently revised.[8] Health and well-being of young people is one of the prime emphases of the policy.[8] However, there are several data gaps in comprehensively understanding the health and health-impacting behaviours of the youth in the state. Existing studies are limited in terms of their exclusive focus on a particular segment of the youth population (i.e. they have focussed only on adolescents or school students or college-going students). They have also assessed only a few health-impacting behaviours and the methodological issues of those studies limit the generalisability of their findings.[9-11] Lack of quality and comprehensive data on youth health in the state is a challenge for developing evidence-based policies and for evaluating various interventions implemented based on the youth policy. In light of this, the current study was conducted to thoroughly understand the prevalence of a range of health-impacting behaviours of public health importance among youths between the ages of 16 and 30 years in Srinivasapura Taluk, Karnataka State.

Methodology

Kolar district is the Public Health Observatory of the Department of Epidemiology at NIMHANS, Bangalore. This cross-sectional study was undertaken in Srinivasapura taluk of Kolar district during 2017-2018. The department is actively implementing several initiatives and field activities in Srinivasapura taluk and hence good rapport with the taluk administration and community has been established. Thus leveraging these advantages, Srinivasapura taluk was selected for the study.

Youth in Srinivasapura taluk of Kolar district constituted the study population. According to the Karnataka State Youth Policy 2012,[12] youth is defined as individuals aged between 16 and 30 years. In the present study, the same age criterion was adopted with a view of supporting youth-related policies and programmes in the state. Youths who were permanent residents of Srinivasapura taluk i.e. were residing for ≥ 6 months and provided informed consent were included in the survey. For respondents who were 16-17 years old, their assent along with consent from their parents or guardians was sought.

The sample size was estimated considering the formula $n = Z^2 \times P(1-P)/d^2$, (n: sample size, Z: standard normal deviate, P: prevalence, and d: allowable error or absolute precision). Assuming the prevalence to be 50% at 5% absolute precision and 97.0% confidence level, the calculated sample size was 470. Findings from several studies have reported the prevalence of various health-impacting behaviours among youth to range from 1.0% to 65.30%.[13-26] In view of the wide-ranging prevalence and also to ensure the largest possible sample size for the current study, we estimated the sample size under the assumption that 50% of youths would engage in one or more health-impacting behaviours. Since the present study employs cluster sampling technique for the selection of the respondents, the sample size derived by using the above formula was multiplied by the design effect. Conventionally, 1.5 to 2 is considered to be the design effect used for the cluster sampling technique.[27] We considered the upper limit of the design effect, therefore after multiplying 470 with the design effect of 2, the minimum estimated sample size obtained was 940.

A stratified two-stage cluster sample with probability proportionate to population size (PPS) sampling method was used in this study. In the urban area, a ward was considered a cluster and in the rural area, a village was considered a cluster. The project team decided to select 30 individuals per cluster and thus a total of 32 clusters had to be selected to cover the sample size of 940. The proportion of the urban and rural population in Srinivasapura taluk was 13.2% and 86.8% respectively. Hence 4 urban clusters and 28 rural clusters were selected. The list of wards (23 wards) and inhabited villages (296 villages) in Srinivasapura taluk as per the census 2011 served as the sampling frame and PPS technique was used to select the requisite number of urban and rural clusters.

Trained field staff was employed for data collection. The field staff identified the cluster and verified it with the help of panchayath and community members. Following

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.202306

this, a walk-through of the community was conducted to mark the boundary and identify the centre of the cluster. Then, standing in the centre of the cluster, field staff serially numbered all the streets radiating from the centre in a clockwise direction starting from the northeast corner of the cluster. Subsequently, the currency method was used to randomly select one of the streets. Within the selected street, all the households were numbered beginning with the field staff's right side and the first household was selected randomly by following the currency method. Subsequent households were selected based on a systematic random sampling technique.

In each cluster, 22 households had to be selected for interviewing 30 youths. Depending on the total number of households in the given cluster, field staff calculated the sampling interval as explained in Table 1. After completing the interview in one household, they selected the next household based on the sampling interval. Basic sociodemographic details of the household were obtained from the most reliable respondent available at the time of the survey. All eligible respondents, available at the time of the survey, were interviewed. If the eligible respondent was not available, two more visits were planned depending upon the convenience of the respondent. Those not available even after three visits were considered non-responders.

In the study, information was collected on various aspects of youth health and health-impacting behaviours. The details of some of the standard study instruments used in the study and the definitions adopted for the study are given in Table 2. For various other parameters that were assessed, a semi-structured questionnaire was specifically developed and used.

Field staff, after selecting the household and study subjects, explained to them the purpose of the study. Following this, field staff began the interview by starting with socio-demographic information and proceeded through subsequent sections of the questionnaire. After completing the interview, data collectors provided clarification for any questions raised by the participant and proceeded to interview the next eligible member in the same or next household.

Table 1.Process of Calculating Sampling Interval

Step 1: Number of individuals in Kolar district between the age of 16 and 30 years = 455121
Step 2: Total number of households in Kolar District = 333348
Step 3: Average number of youths (16-30 years) per household in Kolar district = 455121/333 = 1.4. The same was assumed for Srinivasapura taluk.
Step 4: In each cluster, 30 youths had to be interviewed. The number of households to be selected to interview 30 youths = 30/1.4 = 21.4 households = 22 households.
Step 6: Sampling interval for each cluster varied depending on the total number of households in that particular cluster, for example: • In village A, there were 200 households. The number of households to be selected for the survey was 22. Hence sampling interval for village A = 200/22 = 9.1 = 9. • In village B, there were 400 households. The number of households to be selected for the survey was 22. Hence sampling interval for village B = 400/22 = 18.2 = 18.

Table 2.Standard Instruments Used and Definition Adopted for the Study

Study Parameters	Study Instruments	Definitions
Nutrition	• The nutrition module from the World Health Organisation – Non-Communicable Disease risk factors STEPS survey was used. • Frequency of consumption of food items like fried local foods (vada, bhajji, bonda, samosa, etc.), aerated/ sweetened beverages, pizza/ burgers, cakes/ pastries/ bakery items as well as chips/ namkeens, was collected.	One standard serving of fruits or vegetables is equivalent to 80 grams, which is translated into different units of cups.
Physical activity	• A global physical activity questionnaire (GPAQ) was used.	Physically active: Individual achieving ≥ 600 MET minutes per week based on GPAQ

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.202306

Tobacco use	• Information on current use/ ever use and frequency of tobacco use (both smoke and chewable tobacco) was collected. • Fagerström Test for Nicotine Dependence was used to assess the intensity of physical addiction to nicotine.	Ever use: Someone who has smoked/ used a chewable form of tobacco at least once in their lifetime Current use: Someone who at the time of the survey reported smoking/ using chewable tobacco daily or occasionally As per the modified Fagerstrom questionnaire, low to moderate dependence is a score of 4 or less and significant dependence is a score of 5 or more.
Alcohol use	• Information on current use/ ever use and pattern of alcohol use was collected. • AUDIT (Alcohol Use Disorder Identification Test) instrument was used to assess dependence among alcohol users.	Individuals scoring 8 and above on AUDIT are defined to have harmful or hazardous use. Individuals scoring more than 0 on questions 4-6 of the AUDIT scale are defined as having alcohol dependence.
Depression and anxiety	• Screener questions from MINI (Mini International Neuropsychiatric Interview**)** were used.	Those reporting yes for the two-screener questions each for depression and anxiety were considered screened positive for depression and anxiety respectively.
Gambling	Specific questions were developed under the project.	Gambling is the wagering of money or a valuable object on an event with an uncertain outcome with the main goal of obtaining financial gain or material goods.
Road traffic injury	Specific questions were developed under the project.	Injury due to a collision occurring on a public road that involves at least one moving vehicle

The project investigator undertook regular supervisory field visits to assess the progress of the study. On the day of the supervisory field visit, study investigators collected the completed questionnaires pertaining to the same or previous cluster. Ten completed questionnaires of the given cluster were randomly selected and the information collected in these questionnaires was cross-verified by re-interviewing the study participants. In the event of any major discrepancy observed in any 2 of the 10 completed questionnaires, field staff was made to repeat the survey in that particular cluster. Discrepancies in the collected data were observed in 3 clusters during the initial phases of data collection. Field staff was made to repeat the survey in those 3 clusters and during the remaining phase of the survey, no such discrepancies were observed.

Data forms (questionnaires) were kept under the safe custody of investigators with restricted access to the same. Data were entered in Microsoft Excel on a specific password-protected computer. In order to ensure minimal error in data collection and entry, most of the questions were structured and coded. A validation mechanism was put in place in the Microsoft Excel sheet which reduced the chances of wrong entries. Despite these measures, some errors in data collection and entry were observed and the same was corrected to prepare an error-free data set. Data were analysed using statistical software SPSS version 21.0. The socio-demographic characteristics of the study participants were summarised as frequency and percentage for the qualitative data and as mean and standard deviation for quantitative data. The ethical clearance for the project was obtained from NIMHANS Institute Ethics Committee vide letter No: NIMHANS/IEC (BS & NS DIV.) 4th MEETING/2017 dated 28/2/2017.

Results

The study participants' mean age was 22.5 years (SD: 4.31). The proportion of males (53.5%) was slightly higher than females (46.5%). The majority of the participants (90.8%) belonged to the Hindu religion. Most of the study participants were literate, with illiterate participants comprising only 1.7% of the study population. The proportions of youths

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.202306

who had completed high school, pre-university education, and degree/ diploma were 27.7%, 29.2%, and 28.0% respectively. Around 1/3rd of the study participants were students and 24.6% were doing housework. 38.6% of the respondents were engaged in various occupations ranging from agricultural labour to business and 62.6% of the study participants were never married.

As seen from Table 3, it is evident that a vast majority of youths in Srinivasapura taluk had one or more health-impacting behaviours. On a typical day, 99.0% of the study participants consumed less than 5 servings of fruits and/ or vegetables (Table 3). A very low proportion of youths in the study area drank aerated/ soft drinks and similarly, a very low proportion consumed pizza/ burger. 70% of participants reported drinking it occasionally/ rarely while only 1.3% reported consuming pizza/ burger occasionally/ rarely. The common junk food among youth in the study was bakery products and chips/ namkeen. Approximately 40% of the youths reported consuming bakery products (like cakes and pastries) and chips/ namkeen 2-3 times a week while 51.2% reported consuming fried local foods like samosa and bhajji once a month (Table 4).

Current smoking and current use of chewable tobacco were prevalent among 5% and 9.2% of youths respectively (Table 3). The mean age for starting habitual smoking and use of chewable tobacco was 18.5 years. The median number of cigarettes/ bidis smoked per week was 25 and the median number of tobacco pouches used per week was 3. The prevalence of current alcohol use was 6.7% and the mean age of starting alcohol consumption was 19.8 years. Among those who had consumed alcohol in the last 12 months, hazardous or harmful use of alcohol was observed among 25.8% and alcohol dependence was seen in nearly 1/5th (17.7%) of the respondents (beer, whisky, wine, brandy, rum, gin etc.).

Table 3.Prevalence of Health-impacting Behaviours and Selected Health Conditions among Youth in Srinivasapura Taluk, Karnataka

Health-related Behaviour	Percentage of Participants
Diet and physical activity	
Proportion of study participants who consumed less than 5 servings of fruits and/ or vegetables	99.00
Proportion of study participants who had inadequate physical activity (less than 600 MET minutes per week)	38.60
Substance of abuse	
Proportion of study participants who ever smoked	5.90
Proportion of study participants who were currently smoking	4.80
Proportion of study participants who ever used chewable tobacco	9.70
Proportion of study participants who were currently using chewable tobacco	9.20
Proportion of study participants who ever consumed alcohol	8.80
Proportion of study participants who were currently consuming alcohol (in the past 12 months)	6.70
Proportion of study participants who ever used any other substance of abuse	0.20
Proportion of study participants who were currently using any other substance of abuse	0.20
Gambling	
Proportion of study participants who ever participated in gambling	40.6
Proportion of study participants who participated in gambling in the last 12 months	21.3
Proportion of study participants who reported ever missing school/ college/ work due to gambling-related activities	0.10
Proportion of study participants who reported a steady increase in the amount spent and/ or time towards gambling	5.40
Family member or relative or friend who was concerned about the participation in gambling or had suggested reducing it	0.5

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.202306

Depression, anxiety, suicide	
Proportion of study participants who were at risk of depression	0.40
Proportion of study participants who were at risk of anxiety	5.20
Proportion of study participants who reported ever having repeated intensifying thoughts of voluntarily ending their life	1.60
Proportion of study participants who attempted to harm themselves in the past 12 months	0.90
Others	
Proportion of study participants who reported not wearing helmets either most of the time or very often while riding two-wheelers	97.90
Proportion of study participants who sustained road traffic injury of varying severity in the past 12 months	3.20

Table 4.Frequency of Consumption of Snacks (Junk Foods) among the Study Population

Frequency	Fried Local Foods (Samosa, Bonda, Bhajji, Kachori) n (%)	Aerated Drinks and Sweetened Drinks n (%)	Pizza/ Burgers/ French Fries n (%)	Cakes/ Pastries/ Other Bakery Items n (%)	Chips/ Namkeen Etc. n (%)
Community survey (N = 936)					
Daily	14 (1.5)	2 (0.2)	0 (0.0)	67 (7.2)	204 (21.8)
2-3 times a week	87 (9.3)	14 (1.5)	0 (0.0)	371 (39.6)	380 (40.7)
Once a week	288 (30.8)	72 (7.7)	0 (0.0)	373 (39.9)	281 (30.0)
Once a month	480 (51.2)	150 (16.0)	3 (0.3)	104 (11.1)	58 (6.2)
Occasionally/ rarely	67 (7.2)	653 (69.8)	12 (1.3)	19 (2.0)	10 (1.1)
Never	-	45 (4.8)	921 (98.4)	2 (0.2)	2 (0.2)

Table 5.Prevalence of Violence-related Behaviour among Youth in Srinivasapura Taluk, Karnataka

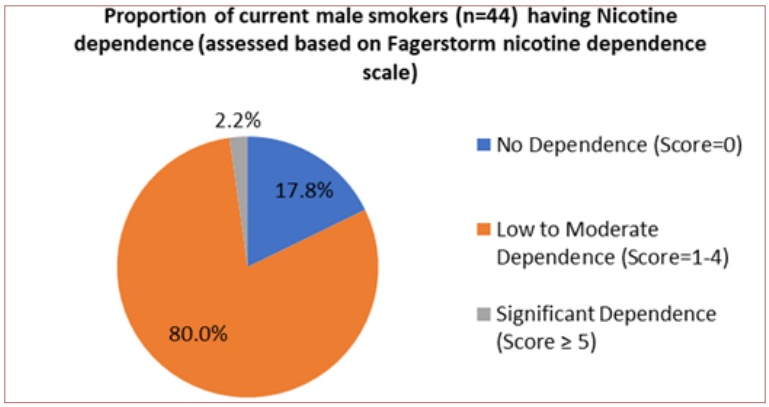
Behaviour	Experienced Violence n (%)	Perpetrated Violence n (%)
Hit/ kicked	14 (1.5)	15 (1.6)
Pushed/ shoved	7 (0.7)	3 (0.3)
Badly beaten up	38 (4.1)	27 (2.9)
Threatened/ attacked with a weapon	17 (1.8)	14 (1.5)
Verbally/ emotionally abused	312 (33.3)	279 (29.8)
Robbed	55 (5.9)	9 (1.0)
Sexually harassed/ assaulted	8 (0.9)	9 (1.0)

One in every five (21.3%) youths in the study reported participation in gambling in the past 12 months and 5.4% reported a steady increase in the amount and/ or time spent on gambling. The proportion of youths at risk of depression was low (0.40%) when compared to anxiety (5.2%). 1.6% and 0.9% of the study participants had repeated suicidal thoughts and had attempted suicide in the past 12 months respectively. 97.9% of the youths reported that they were not wearing helmets most of the time or very often while riding two-wheelers and the prevalence of road traffic injuries among youth in the study area was 3.2% (Table 3).

Youth violence is a major public health problem worldwide. The most common form of violence, in terms of perpetration on others and being a victim of it among youth in the study area is verbal/ emotional abuse reported by 33.3% and

29.8% of respondents respectively. Physical violence i.e., being badly beaten up (4.1%) and beating others (2.9%) was also common. 0.9% of youths reported being sexually harassed/ assaulted (Table 5).

Most of the male current tobacco users in the study had low to moderate dependence on nicotine. Approximately 80% of current smokers and 94.9% of current chewable tobacco users had low to moderate nicotine dependence. However, the dependence on nicotine among female current users of chewable tobacco was worrying. 1 in every 5 current female users of chewable tobacco had significant dependence on nicotine (Figure 1). Among youths, particularly males with current alcohol use, hazardous or harmful use of alcohol was observed in 25.8% and alcohol dependence was seen in 17.7% (Figure 2).



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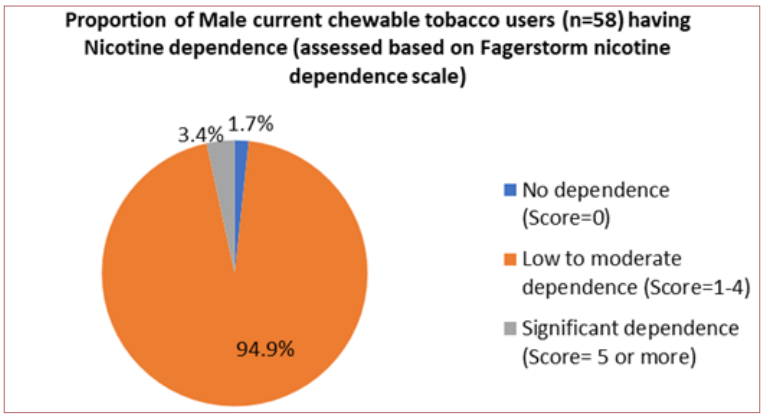

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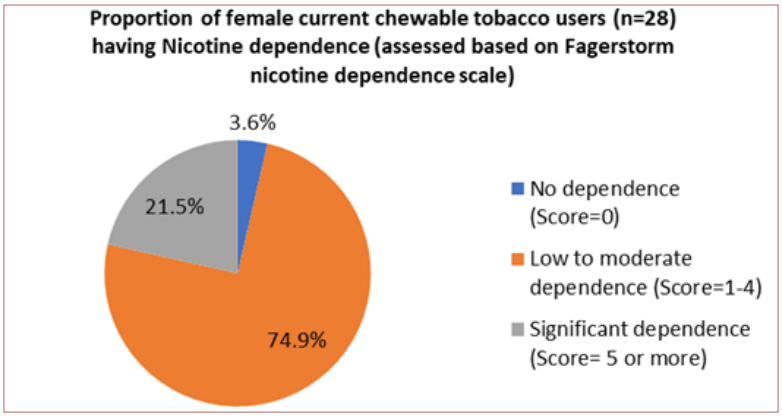

(c)

Figure 1.Dependence on Nicotine among Youth with Current Substance Use in Srinivasapura Taluk, Karnataka (Assessed based on Fagerstorm Nicotine Dependence Scale) (a).Current Male Smokers (N = 44) (b).Current Male Chewable Tobacco Users (N = 58) (c).Current Female Chewable Tobacco Users (N = 28)

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.202306

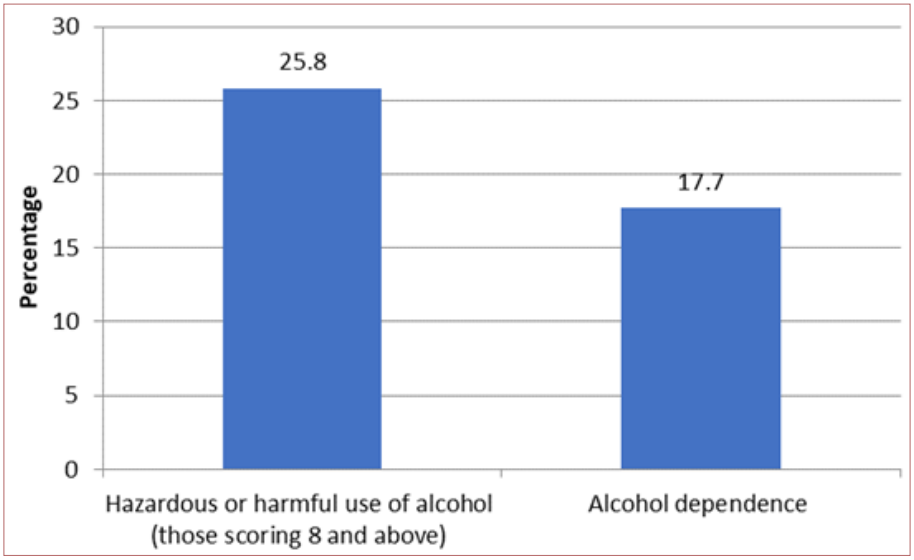

Figure 2.Hazardous and Harmful Use of Alcohol among Youth (Males) with Current (Consumed Alcohol in the Last 12 Months) Alcohol Use (N = 62)

Table 6.Prevalence of Physical Activity among Youth in Srinivasapura Taluk, Karnataka

Behaviour	Male (N = 501)	Female (N = 435)	Total (N = 936)
Proportion of youths whose work involved vigorous-intensity activity	16 (3.2)	7 (1.6)	23 (2.5)
Proportion of youths whose work involved moderate-intensity activity	305 (60.9)	344 (79.1)	649 (69.3)
Proportion of youths who walked or used a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places	376 (75.0)	271 (62.3)	647 (69.1)
Proportion of youths who did any vigorous-intensity sports, fitness or recreational (leisure) activities	1 (0.2)	0 (0.0)	1 (0.1)
Proportion of youth who did any moderate-intensity sports, fitness or recreational (leisure) activities	81 (16.2)	5 (1.1)	86 (9.2)

Nearly 40% of the youths in Srinivasapura taluk had inadequate physical activity (Table 3). Most of the physical activity among the youth was contributed by walking or use of bicycle for transportation (69.1%). The contribution of sports, fitness or recreational (leisure) activities to overall physical activity was very less among males (16.2%) and was particularly abysmal in the case of female study participants (1.1%) (Table 6).

Discussion

The youth health survey conducted in Srinivasapura taluk is a comprehensive population-based survey assessing various health-impacting behaviours among rural youth (aged 16-30 years) in the state of Karnataka. The robust methodology and use of standard study instruments provide estimates that are generalisable to youth in the study area with certain limitations to the youth population in rural Karnataka. The present study clearly shows that health-impacting behaviours are widely prevalent among youth in the study area. Almost all the youths interviewed seemed to have at least one health-impacting behaviour.

In a typical week, youths in the study area ate fruits and vegetables on an average of 1 and 7 days, respectively. Similarly, a normal day's serving size for fruits and vegetables was 1 and 2, respectively. Consequently, 99% of the study participants consumed less than 5 servings of fruits and/or vegetables in a typical day in a typical week. There was wide variation in the prevalence across studies in terms of daily or weekly consumption of fruit and vegetables but the general trend observed was in favour of their less frequent consumption.[28-33] Though youth in the study area were eating vegetables on a daily basis, their quantity was inadequate and consumption of fruits was typically low. Awareness, accessibility, affordability, and personal

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.202306

preferences could explain the low intake of fruits and daily consumption of vegetables, albeit in inadequate quantity. Bakery items and chips/ namkeen were the common junk foods frequently eaten by youth in the study area (Table 4). Having aerated and sweetened drinks or eating pizza/ burger/ french fries was relatively less frequent among youth in the present study. According to a study conducted by Joseph et al. in India, the prevalence of daily consumption of fast food was found to be 14.4%.[34] Similar findings were reported by Mahajan et al. and Amin et al.[35,36] Another study found that 38.8% of its study participants preferred eating fast food ranging from sugar beverages to chips, and other types of fast food.[37] Processed foods are generally energy dense and also have large amounts of saturated and trans-fat, which are associated with an elevated risk of non-communicable diseases (NCDs). Lower penetration of branded merchandise that sell pizza, burger etc. in the study area could explain their lower consumption among youth.

Two in every five youths (38.6%) in Srinivasapura taluk had less than the recommended level of physical activity. The report card on physical activity for children and youth in India (2018) observed that only 1/4th of children and youths accumulated ≥ 60 minutes of moderate-intensity physical activity daily.[38] The prevalence of physical inactivity among adolescents/ youth in India ranged between 42.5-54.4%.[39-41] Proportion of youth participating or engaging in sports/ fitness/ recreational activities is very low in the study area. The participation of female youth in such activities is quite low, which is also reflected in other studies conducted in India.[42] Dependence on tobacco (nicotine) is of particular concern among tobacco users as they are associated with several severe health issues.[43] Among male tobacco users, the proportion having significant dependence on nicotine was very low in the present study. Among the studies on adolescents/ youth in India, high levels of nicotine dependence were observed among 27.3% of the then-tobacco users in a study conducted in Burdwan, West Bengal.[44,45] Different study settings and the present study being predominantly rural could explain this variation. Also, the low prevalence of significant nicotine dependence could be due to the fact that dependence develops over a long period of exposure to nicotine and youth in the study area (and in general) would have started smoking recently and the number of cigarettes smoked would also be less in the initial days of starting this behaviour. However, it is also important to note that a vast majority of the current users had low to moderate dependence. Over-continued use of tobacco could develop significant dependence resulting in a public health challenge.

The prevalence of tobacco chewing was very common among youth in the study area and was surprisingly high among females. However, the more disturbing fact is that 21.5% of female tobacco chewers were significantly dependent on it. Such findings have been observed in other studies too, however, the proportion varies.[46] Considering the burden of oral cancer in India (the third most commonly occurring cancer in India amongst both men and women) and particularly among females in rural India,[47] the present finding calls for an immediate intervention in the Kolar district to reduce the impact of tobacco use among the youth population, who are also the future generation of this society. One in every 10 youths (male) reported drinking alcohol in the past 12 months. Alcohol is an important NCD risk factor and it is associated with several health issues. It seems to be a silent killer of youth in Srinivasapura taluk as the level of hazardous use and alcohol dependence among current male alcohol users was 25.8% and 17.7% respectively. This calls for a strong public health response to reduce the impact of alcohol in the study area.

Suicide is the fourth leading cause of death among youths (15-29 years) in the world.[48] In India too, suicide is one of the top causes of death among youth.[49] In Karnataka, among the youths visiting mental health promotion clinics, the prevalence of suicides was 3.5%.[50] A study conducted among youth in India has reported the prevalence of suicidal thoughts and attempts ranging between 11.7% and 4.0%.[51] Another study conducted at a medical school in an urban area found that 4% of students had suicidal thoughts in the month before the study, 1% of students had seriously considered committing suicide, 0.4% had attempted suicide in the previous month, and 4% had attempted suicide in the past.[52] Though the findings from our study on the prevalence of suicidal thoughts and attempts are in line with the existing evidence, the subtle difference could be attributed to the different study populations and varying definitions/ terminologies used for suicide across the studies. Gambling is regulated and some form of gambling is prohibited in the state of Karnataka. Despite this, 5% of youths in Srinivasapura taluk reported excessive involvement in gambling (steady increase in money and time spent). The problem of gambling prevalence among youth in India is a less explored topic. The prevalence of problem gambling among adolescents/ youth as per the few available studies was approximately 7%.[53,54] Problem gambling among youth could contribute to poor mental health and suicide and its impact extends to families and society at large.

Around 1/3rd of the participants reported that they had been verbally/ emotionally abused and a similar proportion had verbally/ emotionally abused others. Studies on adolescents in the state of Himachal Pradesh reported a similar form of violence with 3.90% facing abuse.[55] Such forms of violence can impact the mental health of affected individuals. However, much needs to be explored regarding its effects and also on various interventions to address it. Road traffic injuries constitute the leading cause of death

ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.202306

among young adults[56] and motorcyclists are among the most vulnerable road users.[57] In low- and middle-income nations, 88% of fatalities among two-wheeler users are due to head injuries. Wearing a helmet lowers the risk of head injury and death by 69% and 42% respectively.[58] However, 98% of youths in Srinivasapura taluk reported not wearing helmets most of the time or very often while riding two-wheelers. Helmet use varies across studies and typically their use is high in big cities and urban areas and their usage is very low in rural areas in India.[59] Helmet use being a lifesaving intervention, the helmet use legislation should be strictly enforced in the study area.

Conclusion

Youth in Srinivasapura taluk of Kolar district have several health-impacting behaviours and conditions including nutritional problems, low physical activity, tobacco and alcohol use, mental health problem, suicide, injury, gambling, and emotional abuse. This is concerning and the health department of Kolar district and Kolar district administration should plan and implement interventions to protect and promote the health of youth in the district. Evidence-based interventions, for the various health concerns identified in the study, are available and they need to be implemented. Interventions should be implemented at the individual level, family level, facility (educational institutes and workplaces) and community level. Planning and implementing such interventions needs coordination between various sectors (health and non-health) and departments. A comprehensive youth health plan at the district level needs to be developed and implemented and they should be regularly monitored and evaluated. Through continuous research, newer innovative methods of addressing youth health issues should be developed. Though the present study highlights the youth health issues in the taluka and in the district, a more comprehensive study covering the overall health and youth health determinants is recommended at the state and national levels for effectively implementing the policies and programmes in Karnataka and in India.

Acknowledgement

We would like to sincerely acknowledge the encouragement and support of the former and present Director of NIMHANS. We are immensely thankful to the faculty, staff and students of the Department of Epidemiology for their support. We are also thankful to the District Health Office/r of Kolar district and taluk, and Health Office/r of Srinivasapura taluk for their cooperation. Most importantly, we express our heartfelt thanks to the participants for their active and enthusiastic participation and to their family members for encouraging and supporting them.

Source of Funding: National Institute of Mental Health and Neurosciences.

Conflicts of Interest: None

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ISSN: 2455-7048
DOI: https://doi.org/10.24321/2455.7048.202306