

A Cross-Sectional Study on Health Risk Behaviours among Students of Professional Courses in a College Located in a Coastal City of Andhra Pradesh

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Abstract

Background: Background: Health risk behaviours adopted during adolescence and young adulthood are important determinants of morbidity and mortality in later life. Students of professional courses, being future opinion leaders and role models, are expected to demonstrate healthy lifestyle practices; however, this population remains under-studied in coastal Andhra Pradesh. The objective is to assess the multiple health risk behaviours among students of professional courses in a college and to determine the association between these behaviours and socio-demographic covariates. **Material and Methods:** A descriptive cross-sectional study was conducted among 402 undergraduate students of medical, dental, nursing and engineering courses at a college in Visakhapatnam city over a two-month period (August-September 2021) using a pre-tested, semi-structured, self-administered, anonymous questionnaire covering physical activity, mobile phone and social media use, dietary habits, road user behavior and substance use. Data were summarized using means, standard deviations, frequencies and percentages, and associations were tested using the chi-square test. **Results:** The mean age of participants was 21.13 ± 1.50 years, with 69.4% females. Only 20.9% of students engaged in physical activity for more than 300 minutes per week, while 49.2% used mobile phones for more than 6 hours per day. Fast food was consumed by 61.4% of students and soft drinks by 46.5%. Seat belts and helmets were used consistently by 41.3% and 42.3% of students respectively, and 22.6% reported a history of road traffic accidents. Addictions were present in 5.7% of students, with alcohol (2.5%) and smoking (1.7%) being the most common. Significant associations were observed between gender and mobile phone usage, social media use, fast food and soft drink consumption, road traffic accidents and addictions ($p < 0.05$), and between enrolled course/year of study and several risk behaviours. **Conclusion:** Health risk behaviours are widely prevalent among students of professional courses, with notable gender and course-wise variation. Early, integrated, student-centered health promotion and life-skills education strategies are recommended to reduce the future burden of preventable non-communicable disease among this influential population subgroup.

Keywords: Health risk behaviour; Cross-sectional study; Professional course students; Physical activity; Substance abuse; Road traffic accidents.

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INTRODUCTION

Youth, the productive and dynamic section of the population, is considered the most valuable human resource for fostering the economic, cultural and political development of a nation. Young people aged 10-24 years in India constitute a precious resource characterized by growth and vulnerability, often influenced by intrinsic and extrinsic factors affecting their health and safety. This period is marked by physiological, psychological and behavioural changes coupled with varying patterns of social interaction, which may lead to engagement in multiple risk behaviours-health behaviours adopted in adolescence or childhood that are associated with adverse outcomes.

Globally, the major causes of youth morbidity and mortality are not diseases but preventable behaviours interacting with social and environmental factors. Adolescent health problems are largely related to sexual and reproductive health and the use of tobacco, alcohol and psychoactive

substances; accidents, suicide and interpersonal violence remain the leading causes of death among individuals aged 10-19 years.^[1,2] Risk factors such as alcohol consumption, smoking, physical inactivity and inadequate nutrition are major determinants of chronic illness later in life, and behaviour formed early can significantly influence future disease occurrence;^[3,4] modification of these behaviours can enhance

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health and reduce the risk of chronic illness.^[5-7]

According to the World Health Organization, an estimated 2.6 million young people aged 10-24 years die each year, and a much larger number suffer from illnesses and behaviours that hinder their growth and development. Nearly two-thirds of premature deaths and one-third of the total disease burden in adults are associated with conditions or behaviours initiated in youth, including tobacco use, physical inactivity, high-risk sexual behaviour, and injury and violence.^[7] Most of these problems are linked with social determinants and lifestyles operating in complex environments, and the developmental transition of young people makes them particularly vulnerable to environmental and contextual influences.

Students of professional courses, who will become future opinion leaders, can serve as role models for health-related behaviours. They are expected to lead healthy lifestyles, possess theoretical knowledge of healthy behaviour, and be positioned to advise the community on health promotion. With this background, the present study was planned among students of professional courses in Visakhapatnam.

Objectives

- To assess the multiple health risk behaviours among students of professional courses in a college.
- To determine the association between health risk behaviours and other covariates.

MATERIALS AND METHODS

Study design and setting: An observational descriptive, cross-sectional study was conducted among undergraduate students of professional courses namely, medical, dental, nursing and engineering enrolled at a college campus of Anil Neerukonda Educational Society in the coastal city of Visakhapatnam, Andhra Pradesh, India, over a two-month period from 1st August 2021 to 30th September 2021.

Study population and sampling: All undergraduate students of professional courses aged more than 18 years enrolled at the college were eligible for inclusion, while

students who were absent on the day of the survey or unwilling to participate were excluded. All students enrolled in the professional courses of the college, as per the institutional census, constituted the sampling universe; a purposive sampling technique was used, yielding a final sample of 402 students. Students from first year to final year were briefed regarding the purpose of the study, following which informed consent was obtained. Complete anonymity was ensured throughout data collection to encourage true reporting. Data were collected using an anonymous, self-administered, pre-tested, semi-structured questionnaire; seating arrangements ensured privacy, and students unwilling to participate were permitted to return blank forms, with thirty minutes allotted for questionnaire completion following an introductory session explaining the purpose of the study and instructions for completion.

Study instrument: The questionnaire captured socio-demographic details (age, gender, parental occupation, residence, type of family), physical activity, mobile phone and social media use, dietary intake (fast food, soft drinks, fruit consumption), road user behaviour (seat belt and helmet use, driving speed, drunk driving, mobile phone use while driving, road traffic accidents, traffic rule violations), and substance use/addiction (smoking, alcohol, tobacco chewing, other substances, duration and reasons for addiction).

Statistical analysis: Data was entered into Excel spreadsheet and was analysed using IBM SPSS Statistics Version 21. Quantitative data were summarized using mean and standard deviation, while qualitative data were summarized using frequency and percentage, and the chi-square test was used to test associations between health risk behaviours and socio-demographic covariates, with $p < 0.05$ considered statistically significant.

Ethical considerations: Approval was obtained from the Institutional Research Committee and Institutional Human Ethics Committee of NRI Institute of Medical Sciences vide Serial No. IEC/NRIIMS/2021/08 prior to commencement of the study.

RESULTS

Table 1: Socio-Demographic profile of the students (N=402)

Variable	Label	Medical N (%)	Dental N (%)	Nursing N (%)	Engineering N (%)	Total N (%)
Gender	Male	73 (37.2)	11 (21.2)	23 (20.2)	16 (40.0)	123 (30.6)
	Female	123 (62.8)	41 (78.8)	91 (79.8)	24 (60.0)	279 (69.4)
Year of Study	First Year	30 (15.3)	05 (9.6)	30 (26.3)	06 (15.0)	71 (17.7)
	Second Year	24 (12.2)	06 (11.5)	08 (7.0)	02 (5.0)	40 (10.0)
	Pre-final Year	76 (38.8)	13 (25.0)	23 (20.2)	01 (2.5)	113 (28.1)
	Final Year	66 (33.7)	28 (53.9)	53 (46.5)	31 (77.5)	178 (44.3)
Residence	Urban	141 (71.9)	40 (76.9)	48 (42.1)	24 (60.0)	253 (62.9)
	Rural	55 (28.1)	12 (23.1)	66 (57.9)	16 (40.0)	149 (37.1)
Type of Family	Nuclear	162 (82.7)	35 (67.3)	69 (60.5)	23 (57.5)	289 (71.9)
	Joint	25 (12.8)	11 (21.2)	22 (19.3)	10 (25.0)	68 (16.9)
	Single parent family	09 (4.6)	06 (11.5)	23 (20.2)	07 (17.5)	45 (11.2)
Father's Occupation	Business	61 (31.1)	13 (25.0)	32 (28.1)	16 (40.0)	122 (30.3)
	Doctor	17 (8.7)	0	0	01 (2.5)	18 (4.5)
	Government	65 (33.2)	24 (46.2)	13 (11.4)	10 (25.0)	112 (27.9)
	Private	53 (27.0)	15 (28.8)	69 (60.5)	13 (32.5)	150 (37.3)
Mother's Occupation	Business	11 (5.6)	04 (7.7)	03 (2.6)	03 (7.5)	21 (5.2)
	Doctor	12 (6.1)	0	0	01 (2.5)	13 (3.2)

	Government	20 (10.2)	10 (19.2)	05 (4.4)	05 (12.5)	40 (10.0)
	Private	13 (6.6)	03 (5.8)	13 (11.4)	04 (10.0)	33 (8.2)
	Home maker	140 (71.4)	35 (67.3)	93 (81.6)	27 (67.5)	295 (73.4)

A total of 402 students of professional courses participated in the study. The mean age of participants was 21.13 ± 1.50 years (range 18-25 years). There were more females (69.4%) than males (30.6%). Of the 402 students, 48.7% were from the medical college, 28.3% from nursing, 12.9% from dental and 9.9% from engineering. Most participants were in their

final year of study. Overall, 62.9% resided in urban areas, 71.9% belonged to nuclear families and 11.2% were from single-parent families; 73.4% of mothers were homemakers. The mean age of the students was 18 years and the maximum age was 25 years and the mean ($\pm$ SD) age was $21.13 (\pm 1.50)$ years.

Table 2: Health Risk Behaviours related to lifestyle of the students (N=402)

Variable	Label	N (%)
Physical Activity	<150 min/week	162 (40.3)
	150-300 min/week	156 (38.8)
	>300 min/week	84 (20.9)
Mobile Phone usage	<1 hr	16 (4.0)
	2-3 hrs	188 (46.8)
	>6 hrs	198 (49.2)
Time spent in Social media	<1 hr	113 (28.1)
	2-3 hrs	218 (54.2)
	>6 hrs	71 (17.7)

Physical activity of more than 300 minutes/week was reported by only 84 (20.9%) students, while 40.3% engaged in less than 150 minutes/week of physical activity. Mobile phone

usage exceeded 6 hours/day in 49.2% of students, and 54.2% spent 2-3 hours daily on social media.

Table 3: Health Risk Behaviours related to dietary intake of the students (N=402)

Variable	Label	N (%)
Fast food consumption	Never	155 (38.6)
	≤ 2 meals per week	197 (49.0)
	>2 meals per week	50 (12.4)
Soft drink consumption	Never	215 (53.5)
	≤ 2 cans per week	138 (34.3)
	>2cans per week	49 (12.2)
Fruits	Never	84 (20.9)
	1 fruit per day	203 (50.5)
	>2 fruits per day	115 (28.6)

Fast food was consumed as meals by 61.4% of students (49.0% consuming ≤ 2 meals/week and 12.4% consuming >2 meals/week). Soft drink consumption was reported by 46.5%

of students, and only 28.6% consumed more than two fruits per day.

Table 4: Health Risk Behaviours related to road user status of the students (N=402)

Variable	Label	N (%)
Seat Belt usage	Always	166 (41.3)
	Sometimes	64 (15.9)
	Rarely	17 (4.2)
	Never	31 (7.7)
	NA	124 (30.8)
Helmet usage	Always	170 (42.3)
	Sometimes	77 (19.2)
	Rarely	19 (4.7)
	Never	44 (10.9)
	NA	92 (22.9)
Drunk & Drive	Yes	14 (3.5)
	No	388 (96.5)
Mobile phone usage while driving	Yes	72 (17.9)
	No	330 (82.1)
RTA	Yes	91 (22.6)
	No	311 (77.4)

Seat belts were used consistently ('always') by 41.3% of students while driving cars, and helmets were used

consistently by 42.3% while riding two-wheelers. Drunk driving was reported by 3.5% of students, and 17.9% reported

using mobile phones while driving. A history of road traffic accidents (RTA) was reported by 22.6% of students.

Table 5: Health risk behaviours related to driving speed among the students (N=402)

Speed category	Maximum driving speed N (%)	Average driving speed N (%)
<30 km/h	-	14 (3.5)
<70 km/h	133 (33.1)	-
30-50 km/h	-	241 (59.9)
70-80 km/h	94 (23.4)	-
51-70 km/h	-	68 (16.9)
81-90 km/h	61 (15.2)	-
>70 km/h	-	15 (3.7)
91-100 km/h	68 (16.9)	-
>100 km/h	34 (8.5)	-
Not applicable	12 (3.0)	64 (15.9)

Regarding driving speed, 33.1% of students reported a maximum driving speed of up to 70 km/h, while 8.5% had attempted speeds exceeding 100 km/h. The average driving speed was 30-50 km/h for the majority (59.9%) of students, while 3.7% reported an average driving speed exceeding 70 km/h.

Table 6: Health Risk Behaviours related to substance abuse among the students (N=402)

Variable	Label	N (%)
Addictions	Smoking	07 (1.7)
	Alcohol	10 (2.5)
	Others	06 (1.5)
	None	379 (94.3)
Addiction duration	<1 year	03 (0.8)
	1-2 years	12 (3.0)
	>2 years	08 (1.9)
	NA	379 (94.3)
Reasons for addiction	For fun	08 (2.0)
	Peer pressure	04 (1.0)
	Repeated consumption	01 (0.2)
	Stress	09 (2.2)
	Curiosity	01 (0.2)
	NA	379 (94.3)

Regarding substance use, the majority of students (94.3%) reported no addiction. Alcohol use was the most common addiction (2.5%), followed by smoking (1.7%) and other substances (1.5%). Among those with an addiction, duration exceeded two years in 1.9% of students, and stress was the most common reason cited for addiction (2.2%).

Table 7: Number of days of cigarette smoking and alcohol consumption among the students in the last 30 days (N=402)

Number of days	Cigarette smoking N (%)	Alcohol consumption N (%)
0 days	387 (96.3)	381 (94.8)
1 or 2 days	3 (0.7)	7 (1.7)
3 to 5 days	2 (0.5)	2 (0.5)
6 to 9 days	0 (0.0)	2 (0.5)
10 to 19 days	4 (1.0)	3 (0.8)
All 30 days	4 (1.0)	7 (1.7)
Not applicable/other	2 (0.5)	-

When the frequency of substance use over the preceding 30 days was examined, 96.3% of students had not smoked cigarettes on any day in the last month, while 1.0% had smoked on all 30 days. For alcohol, 94.8% had not consumed alcohol on any day in the last month, while small proportions reported consumption on 1-2 days (1.7%), 3-5 days (0.5%), 10-19 days (0.5%) or all 30 days (0.8%).

Table 8: Association of gender with various Health Risk Behaviours of the students (N=402)

Variable	Label	Male N(%)	Female N(%)	p-value
Physical activity	<150 mins /week	53 (43.1)	109 (39.1)	0.066
	150-300 mins /week	38 (30.9)	118 (42.3)	
	>300 mins /week	32 (26.0)	52 (18.6)	
Mobile Phone usage	<1 hour	05 (4.1)	11 (3.9)	0.040
	2-3 hours	46 (37.4)	142 (50.9)	
	>6 hours	72 (58.5)	126 (45.2)	
Time spent in social media	<1 hour	28 (22.8)	85 (30.5)	0.002
	2-3 hours	61 (49.6)	157 (56.3)	

	>6 hours	34 (27.6)	37 (13.3)	
Fast food consumption	Never	42 (34.1)	113 (40.5)	0.016
	≤2 meals per week	57 (46.3)	140 (50.2)	
	>2 meals per week	24 (19.5)	26 (9.3)	
Soft drink consumption	Never	53 (43.1)	162 (58.1)	<0.001
	≤2 cans per week	42 (34.1)	96 (34.4)	
	>2 cans per week	28 (22.8)	21 (7.5)	
RTA	Yes	41 (33.3)	50 (17.9)	0.001
	No	82 (66.7)	229 (82.1)	
Addictions	Smoking	07 (5.7)	0	<0.001

There was a statistically significant association between gender and mobile phone usage ($p=0.040$), time spent on social media ($p=0.002$), fast food consumption ($p=0.016$), soft drink consumption ($p<0.001$), road traffic accidents ($p=0.001$) and addictions ($p<0.001$). Males reported greater

mobile phone usage, higher fast food and soft drink consumption, more road traffic accidents, and higher rates of addiction compared to females. Physical activity did not show a statistically significant association with gender ($p=0.066$).

Table 9: Association of enrolled course with various Health Risk Behaviours of the students (N=402)

Variable	Label	Medical N(%)	Dental N(%)	Nursing N(%)	Engineering N(%)	p-value
Physical activity	<150 mins/week	78 (39.8)	21 (40.4)	47 (41.2)	16 (40.0)	0.999
	150-300 mins/week	75 (38.3)	21 (40.4)	44 (38.6)	16 (40.0)	
	>300 mins/week	43 (21.9)	10 (19.2)	23 (20.2)	08 (20.0)	
Mobile Phone usage	<1 hour	02 (1.0)	0	12 (10.5)	02 (5.0)	<0.001
	2-3 hours	65 (33.2)	26 (50.0)	77 (67.5)	20 (50.0)	
	>6 hours	129 (65.8)	26 (50.0)	25 (21.9)	18 (45.0)	
Time spent in social media	<1 hour	43 (21.9)	13 (25.0)	50 (43.9)	07 (17.5)	<0.001
	2-3 hours	109 (55.6)	36 (69.2)	49 (43.0)	24 (60.0)	
	>6 hours	44 (22.4)	03 (5.8)	15 (13.2)	09 (22.5)	
RTA	Yes	32 (16.3)	15 (28.8)	28 (24.6)	16 (40.0)	0.005
	No	164 (83.7)	37 (71.2)	86 (75.4)	24 (60.0)	
Addictions	Smoking	03 (1.5)	01 (1.9)	01 (0.9)	02 (5.0)	0.046
	Alcohol	03 (1.5)	0	03 (2.6)	04 (10.0)	
	Others	02 (1.0)	0	03 (2.6)	01 (2.5)	
	None	188 (95.9)	51 (98.1)	107 (93.9)	33 (82.5)	
Traffic rules violation	Yes	29 (14.8)	08 (15.4)	63 (55.3)	12 (30.0)	<0.001
	No	167 (85.2)	44 (84.6)	51 (44.7)	28 (70.0)	

A significant association was observed between enrolled course and mobile phone usage ($p<0.001$), time spent on social media ($p<0.001$), road traffic accidents ($p=0.005$), addictions ($p=0.046$) and traffic rule violations ($p<0.001$).

Medical students reported the highest mobile phone and social media use, while engineering students had the highest prevalence of road traffic accidents, addictions and traffic rule violations.

Table 10: Association of Year of study with various Health Risk Behaviours (N=402)

Variable	Label	First Year N (%)	Second Year N (%)	Pre-final N (%)	Final year N (%)	p-Value
Time spent in social media	<1 hour	31 (43.7)	10 (25.0)	33 (29.2)	39 (21.9)	0.032
	2-3 hours	28 (39.4)	24 (60.0)	58 (51.3)	108 (60.7)	
	>6 hours	12 (16.9)	06 (15.0)	22 (19.5)	31 (17.4)	
RTA	Yes	18 (25.4)	13 (32.5)	16 (14.2)	44 (24.7)	0.055
	No	53 (74.6)	27 (67.5)	97 (85.8)	134 (75.3)	
Traffic rule violation	Yes	31 (43.7)	07 (17.5)	24 (21.2)	50 (28.1)	0.004
	No	40 (56.3)	33 (82.5)	89 (78.8)	128 (71.9)	
Mobile phone usage while driving	Yes	10 (14.1)	03 (7.5)	19 (16.8)	40 (22.5)	0.099
	No	61 (85.9)	37 (92.5)	94 (83.2)	138 (77.5)	
Average driving speed (kmph)	<30	07 (9.9)	02 (5.0)	03 (2.7)	02 (1.1)	0.067
	30-50	44 (62.0)	23 (57.5)	63 (55.8)	107 (60.1)	
	51-70	06 (8.5)	07 (17.5)	24 (21.2)	31 (17.4)	
	>70	0	02 (5.0)	05 (4.4)	08 (4.5)	
	NA	14 (19.7)	06 (15.0)	18 (15.9)	30 (16.9)	

Time spent on social media ($p=0.032$) and traffic rule violation ($p=0.004$) showed a statistically significant association with year of study. First-year students reported the highest rate of traffic rule violations (43.7%), while final-year students spent the most time on social media.

DISCUSSION

Health risk behaviour involves actions, attributes and perceptions that contribute to a person's propensity to engage in, or avoid, activities deemed hazardous to health. This cross-sectional study assessed health risk behaviours among 402 students of medical, dental, nursing and engineering courses in

a coastal city of Andhra Pradesh, covering five domains: dietary behaviour, physical activity, addictions, mobile phone usage and road user behaviour.

The mean age of study subjects was 21.3 ± 1.5 years. Rustagi N et al,^[8] in their study among Delhi medical students observed a similar mean age of 20 ± 3.6 years, although with a higher proportion of males (62.4%) compared with the present study, which had a female preponderance (69.4%). Nearly three-fourths of the present study's participants belonged to nuclear families, and 11.2% were from single-parent households, reflecting the ongoing social transition in Indian society; parental regulation, monitoring, bonding and connection remain important influences at this stage of life.

Only 20.9% of students reported more than 300 minutes/week of physical activity, and 40.3% reported less than 150 minutes/week. Rustagi N et al,^[8] similarly reported that only 35.8% of Delhi medical students achieved at least 30 minutes/day of physical activity on 5 or more days, while 42.6% reported occasional or nil physical activity, with sedentary behaviour increasing significantly with advancing semester. Low physical activity and prolonged sedentary behaviour have also been reported among university students elsewhere, ranging from 22% to 62%.^[9,10] No significant association was found between gender, course, or year of study and physical activity in the present study.

Mobile phone usage exceeded 6 hours/day in 49.2% of students, and 17.7% spent more than 6 hours daily on social media. Ramesh Naidu RD et al,^[11] in a comparative study conducted among medical and engineering students at the same campus, observed that about 75% of medical students and 81% of engineering students used mobile phones for 1-6 hours a day, mainly for communication, with engineering students showing significantly greater use for internet browsing and email. In the present study, a significant association was found between gender and mobile phone usage ($p=0.040$) and time spent on social media ($p=0.002$), with males reporting greater usage than females. Medical students showed significantly higher mobile phone ($p<0.001$) and social media use ($p<0.001$) compared with other courses, consistent with findings by Ramesh Naidu RD et al,^[11] using the Smartphone Addiction Scale-Short Version, where a substantial proportion of both medical and engineering students were found to be at risk of, or already exhibiting, mobile phone addiction. Pre-final year students in the present study also spent significantly more time on social media than students of other years.

India is undergoing a nutritional transition, with traditional diets high in cereals and fiber being progressively replaced by western-pattern diets rich in sugar, fat and animal-source foods. In the present study, 61.4% of students consumed fast food regularly and 46.5% consumed soft drinks, while only 28.6% consumed more than two fruits per day. Similar findings were reported by Mukhopadhyay DK et al,^[16] in their study. Rustagi N et al,^[8] similarly reported that only 12% of students consumed at least five servings/day of fruits and vegetables, while 23.7% consumed carbonated soft drinks and 32.0% consumed fast food. A statistically

significant association was observed between gender and fast food consumption ($p=0.016$) and soft drink consumption ($p<0.001$) in the present study; Rustagi N et al.^[8] similarly reported significantly lower soft drink intake among girls (11.2%) compared with boys (31.2%).

Road traffic accidents remain a leading cause of death and injury worldwide, with over-speeding, drink-driving, non-use of protective gear, and distracted driving being major contributory risk factors. In the present study, only 41.3% of students always used seat belts and 42.3% always used helmets, while 3.5% reported drunk driving. Jothula KY et al,^[12] in a study among college students in Telangana, reported that although 55.3% believed drunk driving was inadvisable even after small amounts of alcohol, 25.6% had nevertheless driven after consuming alcohol. In the present study, 33.1% of students had driven at a maximum speed of up to 70 km/h and 15.2% had attempted speeds above 100 km/h; 17.9% reported using mobile phones while driving, compared with 7.2% reported by Jothula KY et al,^[12] and 32% among engineering students reported by Ramesh Naidu RD et al,^[11] of whom 26% continued conversations while driving. A significant association was observed between gender and road traffic accidents ($p=0.001$), with males more frequently involved, consistent with Registrar General of India data showing higher motor vehicle injury mortality among males.^[13] Engineering students showed significantly higher rates of road traffic accidents ($p=0.005$) and traffic rule violations ($p<0.001$) compared with other courses, while first-year students across courses violated traffic rules more often than other years ($p=0.004$), possibly reflecting lower awareness of traffic regulations and a more careless attitude typical of new entrants.

The majority of tobacco users worldwide begin use during adolescence. In the present study, 94.3% of students reported no addiction, with alcohol (2.5%) and smoking (1.7%) being the most common; 96.3% had not smoked and 94.8% had not consumed alcohol in the preceding 30 days, and examination-related stress was the most frequently cited reason for addiction. National Family Health Survey-3 data have shown that 40% of males and 5% of females aged 15-24 years consumed tobacco nationwide, with a comparable gender gradient in alcohol use (11% of men versus 1% of women aged,^[15-19] years, and 28.8% versus 1.4% among those aged 20-24 years).^[14] A study in Noida city similarly found tobacco and chewing tobacco use in a small proportion of adolescents.^[15] In the present study, a highly significant association was found between gender and addiction ($p<0.001$), with males more frequently addicted to smoking and alcohol, consistent with the NFHS-3 gender pattern.^[14] and with Rustagi N et al,^[8] who reported significantly higher tobacco (9.1% versus 3.7%) and alcohol use (33.5% versus 21.2%) among boys compared with girls. Other population based studies have shown the prevalence of alcohol consumption varying from 1.3% to 15.6% across with a high consumption among males (12.6% to 20.7%).^[17,18] Addiction also varied significantly by course ($p=0.046$), with engineering students showing the highest prevalence, possibly reflecting greater unstructured free time and a predominance of final-year students in that cohort.

CONCLUSION

This cross-sectional study demonstrates that health risk behaviours-including inadequate physical activity, excessive mobile phone and social media use, unhealthy dietary practices, poor road safety behaviour, and substance use-are widely prevalent among students of professional courses in a coastal city of Andhra Pradesh, with notable variation by gender, course and year of study. Preventing the development of high-risk behaviours is easier than reversing them in adulthood, underscoring the need for initiating behavioural change at the earliest opportunity. Health education, given its receptivity among young people to new ideas and modification of habits, remains the most effective method for protecting and promoting their health.

Recommendations: There is a need for the public health community to identify, prepare, integrate and implement activities that promote health and healthy lifestyles among young people, supported by mechanisms for population-based intervention delivery and impact evaluation, along with generation of robust population-level data to inform policy. Strategic investment in health, nutrition, education, employment and welfare is critical for the healthy growth of young people, with ongoing monitoring and evaluation of programme efficacy. Since health risk behaviours are widely prevalent among students and tend to increase with advancing years of study, promotion of a supportive environment for student-centred approaches and strategic delivery of health education is essential. An integrated action strategy involving multiple stakeholders-decision-makers, faculty, parents and students-should be undertaken for the prevention and control of health risk behaviours among students. Focused formal and informal life-skills education delivered through colleges, social institutions and mass media may help reduce health risk behaviours among students in both rural and urban settings.

Limitations: As the study was confined to students of a single educational institution, the findings may not be generalizable to a broader population elsewhere. Only a limited number of domains relating to health risk behaviour were assessed; domains such as high-risk sexual behaviour and mental health disorders could not be evaluated in this study.

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Conflicts of interest

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