

# Health and Lifestyle Issues among Youth: A Record Analysis of Contributing Factors among Beneficiaries Attending Youth Mental Health Promotion Clinics (Yuva Spandana Kendras) in Karnataka, India

Banandur S Pradeep<sup>1</sup>, Mutharaju Arelingaiah<sup>2,3</sup>, Sathya V. Ramamurthy<sup>1,4</sup>, Rache Suma<sup>5</sup>, Nidhi Saraswat<sup>6</sup>, Archana G. Erappa Reddy<sup>7,8</sup>, Hasiruvalli Gangappa Virupaksha<sup>1,9</sup>, Lavanya Garady<sup>10</sup>, Vani Naik<sup>1,11</sup>, Subhash Chandra Lakshminarayan<sup>12</sup>, Shalini Rajaneesh<sup>13</sup>, Gopalkrishna Gururaj<sup>14</sup>, Hanumanahalli N. Gopalkrishna<sup>15</sup>, Thippeswamy<sup>15</sup>, Arvind Banavaram<sup>1</sup>

<sup>1</sup>Department of Epidemiology, Centre for Public Health, NIMHANS, Bengaluru, Karnataka, <sup>2</sup>Department of Psychiatric Social Work, SAMA Program, UK-MRC Funded, NIMHANS, Bengaluru, Karnataka, <sup>3</sup>Department of Psychiatric Social Work, NIMHANS, Bengaluru, Karnataka, <sup>4</sup>Monitoring and Evaluation Officer, <sup>5</sup>Project Coordinator, <sup>11</sup>Training Coordinator, Yuva Spandana Program, <sup>6</sup>Project Scientist B Medical, ICMR-NCDIR, Bengaluru, Karnataka, <sup>8</sup>Department of Epidemiology, NIMHANS, Bengaluru, Karnataka, <sup>7</sup>Research Officer, Brain Infections Global Project, Karnataka, <sup>10</sup>Programs Controller, SKAN Research Trust, Bengaluru, Karnataka, <sup>9</sup>Department of Neurovirology, National Institute of Mental Health and Neuro-Sciences (NIMHANS), Bengaluru, Karnataka, <sup>12</sup>Department of Youth Empowerment and Sports, Government of Karnataka, <sup>13</sup>Planning Department, Government of Karnataka, Karnataka, <sup>14</sup>Former Director and Senior Professor of Epidemiology, NIMHANS, Bengaluru, Karnataka, <sup>15</sup>Department of Youth Empowerment and Sports, State Youth Centre, Bengaluru, Karnataka, India

## Abstract

**Background:** Youth are considered to be most vulnerable to health and lifestyle issues (HLS) in India. The current study aims to investigate the factors that contribute to health and lifestyle issues among youth attending mental health promotion clinics (YMHP) in Karnataka. **Method:** Three-year first-visit data from beneficiaries (aged 15–35 years) attending YMHP clinics in Karnataka between 2017 and 2020 were analyzed. Multivariable logistic regression analysis included beneficiaries reporting any HLS issue as the outcome and a host of 57 hypothesized variables as exposures. **Results:** Overall, 2,615 (25%) beneficiaries reported HLS issues. Years of schooling (AOR 5–7 years = 0.89; 95% confidence interval [CI] = 0.60–1.31), (AOR 8–10 years = 0.65; 95% CI = 0.46–0.91), (AOR >10 years = 0.67; 95% CI = 0.49–0.93), unemployed youth (AOR = 0.52; 95% CI = 0.45–0.61) business and salaried workers (AOR = 1.69; 95% CI = 1.33–2.13), and other occupations (AOR = 2.11; 95% CI = 1.73–2.56), junk food consumption (AOR = 0.76; 95% CI = 0.68–0.84), having issues related to relationships with parents (AOR = 3.01; 95% CI = 2.47–3.68) and intergenerational issues (AOR = 1.71; 95% CI = 1.19–2.45), self-development issues (AOR low-self-awareness = 1.57; 95% CI = 1.33–1.85), (AOR low-self-esteem = 1.29; 95% CI = 1.062–1.57), (AOR emotional issues = 1.57; 95% CI = 1.31–1.89), education and academics (AOR = 1.23; 95% CI = 1.09–1.39), safety issues (AOR = 4.11; 95% CI = 3.07–5.50), gender sex and sexuality issues (AOR = 2.44; 95% CI = 1.43–4.15), suicidal ideation (AOR = 1.91; 95% CI = 1.44–2.54), substance use (AOR tobacco chewing = 1.45; 95% CI = 1.09–1.93), (AOR tobacco-smoking = 1.66; 95% CI = 1.18–2.32), (AOR smoking = 4.94; 95% CI = 3.52–6.93) and experiencing emotions (AOR feel anxious = 1.63; 95% CI = 1.41–1.88), (AOR forgetfulness = 1.50; 95% CI = 1.41–1.98), (AOR difficulty in concentration = 1.37; 95% CI = 1.035–1.81), (AOR anger = 1.61; 95% CI = 1.25–2.07), (AOR feel worthless = 2.21; 95% CI = 1.71–2.86) were associated with HLS issues among beneficiaries. **Conclusion:** This analysis addresses an important but neglected component of HLS issues among youth highlighting the importance of early intervention among youth to prevent the development of diseases later in life. The study has important implications for youth health promotion in India and countries such as India. **Health and Lifestyle Issues Among Youth:** A record analysis of contributing factors among beneficiaries attending Youth Mental Health promotion clinics (Yuva Spandana Kendras) in Karnataka, India.

**Keywords:** Health and lifestyle issues, health promotion, mental health

**Address for correspondence:** Dr. Arvind Banavaram,  
Department of Epidemiology, Centre for Public Health, NIMHANS,  
Bengaluru, Karnataka, India.  
E-mail: aravind\_baa@yahoo.co.in

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## INTRODUCTION

Youth (10–24 years) constitute the largest proportion of the population in the world (~1.8 billion).<sup>[1]</sup> India has the largest share of the youth population in the world,<sup>[2]</sup> with 40% of its population aged 13 to 35 years (National Youth Policy).<sup>[3]</sup> Health is a multidimensional construct encompassing both the objective and subjective well-being of an individual.<sup>[4]</sup> Health behaviors and lifestyles acquired during youth are usually carried over into later life, further contributing to health consequences.<sup>[5]</sup> Further, health and lifestyle (HLS) issues during youth are likely to manifest as disease during adulthood. About 33% of the disease burden and a significant number (~60%) of deaths among adults have their roots during adolescence and youth.<sup>[4]</sup> Understanding and addressing HLS issues among youth and their contributing factors will promote a healthy adulthood. The ongoing epidemiological transition has shifted global attention to HLS issues such as sexual and reproductive health, substance use, mental health, injury, obesity, and chronic physical illness.<sup>[6]</sup> These originate during adolescence and youth. Hence, it is critical to comprehend the underlying factors that are predictors of morbidity and mortality among this productive population. This knowledge will help understand the points of intervention in a health promotion perspective. The current study aims to investigate the relationship between factors that contribute to HLS issues among youth.

## METHODOLOGY

We analyzed case records of beneficiaries of the program Yuva Spandana (Karnataka youth policy initiative) for this analysis. The program “Yuva Spandana” (meaning responding to youth) is a youth mental health promotion program implemented by the Department of Youth Empowerment and Sports (DYES), Government of Karnataka (GoK), with technical support from the Department of Epidemiology, NIMHANS. The program is implemented across 30 districts of Karnataka since 2016 (Yuva Spandana, 2016). Trained “Yuva Samalochakas” (meaning youth counselors) and “Yuva Parivarthakas” (meaning Youth Change Agents) provide guidance and counseling services and support youth facing any issues through Yuva Spandana Kendras (YSKs) situated in every district stadium.<sup>[7]</sup> These Yuva Spandana Kendra are mental health promotion clinics and clients visiting are those with any issues. These are not clinics managing patients with mental health problems. About 400–500 beneficiaries visit YSKs across Karnataka every month. Beneficiary details are documented in specifically developed real-time computerized management and information systems (CMIS) for the purpose of data management, monitoring, and evaluation of program activities. Registration and first visit details of beneficiaries who attended YSKs in Karnataka between January 1, 2017, and December 31, 2020, were considered for this analysis. All beneficiaries aged 15 to 35 years with both registration and first visit details were considered for the study.

Registration details include socio-demographics, predominant food consumption, and other habits such as smoking, drinking, and consumption of drugs. These are standard questions utilized by the Census of India 2011<sup>[8]</sup> and the National Family Health Survey-3.<sup>[9]</sup> Visit details were collected using a visit form specifically developed to collect beneficiary information during every visit to YSK. It included history related to beneficiary’s conditions/issues. The issues reported by beneficiaries were categorized into health and lifestyle issues, personality development issues and emotional issues, education and academic issues, relationship issues, safety issues and gender, sex and sexuality issues based on history. The visit details included issues reported by beneficiaries namely, health and life style issues, education and career, relationship issues, safety, personality and gender, and sex and sexuality issues. Health and lifestyle issues included issues related to sleep, nourishment, physical illness, psychological health, use of substances including tobacco and alcohol and risk of technology addiction. The visit form was filled out based on face-to-face clinical interviews conducted in the clinic and included questions such as “Have you faced any issues related to health and lifestyle?” Any client responding “yes” to this question was defined as having health and lifestyle issues. They were further probed regarding the specific health and lifestyle issues they had. Because the program Yuva Spandana focuses on providing mental health services, the questions were customized based on the client’s needs, which facilitated counseling sessions along with their perceived issues. Furthermore, the visit form included details of the perceived relationship with family members, relatives, neighbors, and friends on a 3-point scale (good, average, and not good). In addition, visit details had a set of 18 items (closed-ended questions) related to beneficiaries’ experience of different emotions or feelings such as feeling depressed, anxious, lonely, tired or helpless, excessively worried, disinterested in work, unable to make decisions, forgetfulness, problems related to concentration, suicidal ideation, guilt, and awareness of their parents/friends attempting suicide. These questions were asked by trained Yuva Samalochaka as is performed in routine clinical practice based on self-report. There were no scales utilized for these purposes.

A total of 11,819 beneficiaries registered during the study period. Among them, 10,340 were aged 15 to 35 years. Case records of these 10,340 beneficiaries were utilized for this cross-sectional case record analysis. Univariate and multivariate logistic regression analyses were performed on beneficiaries with self-reports of health and lifestyle issues (including sleep issues, malnourishment, physical illness, psychological health, spiritual health/wellness, addiction-alcohol/tobacco, technology addiction-cell phone, internet, others) as the outcome. Sociodemographic characteristics of beneficiaries, issues reported (other than health and lifestyle issues), emotions experienced, and habits (tobacco smoking/chewing, alcohol drinking, and substance use) were considered potential exposures [Table 1].

**Table 1: Hypothesized factors and subfactors affecting health and lifestyle among youth in Karnataka – 2017–2020**

Sociodemographic characteristics	Habits	Relationship issues
<ul style="list-style-type: none"> <li>• Age</li> <li>• Gender</li> <li>• Locality</li> <li>• Marital Status</li> <li>• Occupation</li> </ul>	<ul style="list-style-type: none"> <li>• Food (vegetarian/mixed)</li> <li>• Substance use including tobacco chewing, tobacco smoking, alcohol drinking, drugs</li> </ul>	<ul style="list-style-type: none"> <li>• Relationship issues with -parents, peer, marital and virtual relationships</li> <li>• Other issues-Intergenerational issues, communication issues, and socioeconomic issues</li> </ul>
Self-development issues	Safety issues	Gender, sex & sexuality issues
<ul style="list-style-type: none"> <li>• Low self-awareness</li> <li>• Low self esteem</li> <li>• Emotional issues</li> <li>• Disturbed thinking pattern</li> <li>• Lack of skills to handle negative emotions</li> </ul>	<ul style="list-style-type: none"> <li>• Gender-based violence</li> <li>• Suicidal ideation/attempts</li> <li>• Family</li> <li>• Friends</li> <li>• Self</li> </ul>	<ul style="list-style-type: none"> <li>• Gender issues-gender roles, gender discrimination, gender-based violence</li> <li>• Sex-related issues-Child sexual abuse, sexually transmitted diseases</li> </ul>
Education and academic issues	Emotions experienced-1	Emotions experienced-2
<ul style="list-style-type: none"> <li>• Goal setting</li> <li>• Concentration/memory</li> <li>• Time management</li> <li>• Exam-anxiety</li> <li>• Education stress</li> <li>• Bullying/ragging</li> <li>• Career-related issues</li> <li>• Skill-related issues</li> </ul>	<ul style="list-style-type: none"> <li>• Feeling stressed-feeling anxious, worrying about problems, feeling incapable of making decisions or solving problems</li> <li>• Feeling low/depressed-not interested to do any work, feel tired or helpless, feel like lost everything in life, feel lonely and unable to trust anyone</li> </ul>	<ul style="list-style-type: none"> <li>• Memory and anger issues-forgetfulness, difficulty in concentrating and angry with people around</li> <li>• Risky behaviors-feel like running away, feel like committing suicide, feel like it is better if I had died</li> <li>• Mood-related issues- feel like failed in managing responsibilities, feel guilty and feel worthless</li> </ul>

Various hypothesized factors and subfactors potentially associated with health and lifestyle issues are provided in Table 1.

We hypothesize that all these hypothesized exposure variables are associated with health and lifestyle issues.

### Statistical analysis

Univariate and multivariate logistic regression analyses were performed with self-reporting of any health and lifestyle issue as the outcome. All hypothesized exposure variables that were significantly associated with the outcome at a 10% level ( $P < 0.010$ ) in univariate analysis were considered eligible to be included in the multivariate model. These variables were included in the multivariate model one after the other using a forward-stepping process. Each variable was retained in the model at 5% significance ( $P < 0.05$ ). The significance of including a variable in the model was tested using a likelihood ratio test, comparing the previous model without the variable. All descriptive analyses were performed using Microsoft Excel 2007. Logistic regression analysis was performed using Stata 12.0 software for Windows.

### Ethical consideration

Appropriate ethical approval for the study was obtained from the Institutional Ethics Committee at NIMHANS, Bengaluru, vide letter no. NIMH/DO/ETHICS COMMITTEE MEETING/2018, dated 10/01/2019.

## RESULTS

Overall, 2,615 (25.3%) beneficiaries reported having a health and lifestyle issue. The majority of them were men (56.7%),

aged 25 years or less (~80%), from rural areas (72.8%), with more than 10 years of schooling (73.1%) and mostly unmarried (84.6%). More than half (58.9%) of them consumed junk food. All sociodemographic characteristics (except gender), diet, and junk food consumption were found to have statistically significant association with health and lifestyle issues in univariate analysis [Table 2].

The majority of beneficiaries (>70%) who reported health and lifestyle issues had intergenerational issues, relationship problems with parents, and issues with their significant other. Similarly, issues related to education and academics (except concentration/memory issues), safety, gender, sex and sexuality also contributed to the self-report of health and lifestyle issues in the univariate analysis. Almost 47% of those who were bullied, 83% of those who had injuries/first aid and gender-based violence, and 90% of those who were sexually abused as children complained of health and lifestyle issues. Other significant factors in the univariate analysis included substance use and suicidal ideation. Further, about 85% of those who drank alcohol also reported health and lifestyle issues [Table 3].

All 18 variables related to emotions experienced by beneficiaries were significantly ( $P < 0.001$ ) associated with self-reporting of health and lifestyle issues. More than 60% of beneficiaries who reported being unable to trust anyone and felt like running away from everyone had health and lifestyle issues. Furthermore, 58% of those who felt worthless and 56% of those who were angry with people around them also reported health and lifestyle issues [Table 4].

Multiple logistic regression analysis [Table 5] revealed that youth from rural areas showed A 40% increased

**Table 2: Sociodemographic, dietary characteristics, and self-report of health and lifestyle issues among beneficiaries attending Yuva Spandana Kendras during 2017–2020 in Karnataka (n=10340)**

Variables	Health and lifestyle issues				Total (10,340)		Odds ratio	
	Present (2,615)		Absent (7,725)		n	%	OR (CI)*	P
	n	%	n	%				
Age in completed years	18 <sup>s</sup>	5.87 <sup>t</sup>	21 <sup>s</sup>	5.21 <sup>t</sup>	21 <sup>s</sup>	5.35 <sup>t</sup>	1.03 [1.02-1.04]	<0.001
15-20	1496	57.2	4831	62.5	6327	61.2	Reference	
21-25	596	22.8	1710	22.1	2306	22.3	1.12 [1.01-1.25]	0.035
26-30	322	12.3	801	10.4	1123	10.9	1.29 [1.12-1.49]	<0.001
31-35	201	7.7	383	5.0	584	5.7	1.69 [1.41-2.02]	<0.001
Gender								
Female	1132	43.3	3447	44.6	4579	44.3	Reference	
Male	1483	56.7	4278	55.4	5761	55.7	1.05 [0.96-1.15]	0.236
Locality								
Urban	710	27.2	2652	34.3	3362	32.5	Reference	
Rural	1905	72.9	5073	65.7	6978	67.5	1.40 [1.27-154]	<0.001
Years of schooling								
0–4 years	149	5.7	126	1.6	275	2.7	Reference	
5-7 years	162	6.2	332	4.3	494	4.8	0.41 [0.30-0.55]	<0.001
8-10 years	393	15.0	1307	16.9	1700	16.4	0.25 [0.19-0.33]	<0.001
>10 years	1911	73.1	5960	77.2	7871	76.1	0.27 [0.21-0.34]	<0.001
Occupation								
Students	1780	68.1	5566	72.1	7346	71.0	Reference	
Unemployed	314	12.0	1556	20.1	1870	18.1	0.63 [0.55-0.72]	<0.001
Business/salaried	186	7.1	257	3.3	443	4.3	2.26 [1.86-2.75]	<0.001
Others	335	12.8	346	4.5	681	6.6	3.02 [2.58-3.55]	<0.001
Marital status								
Unmarried	2212	84.6	7119	92.2	9331	90.2	Reference	
Married	387	14.8	574	7.4	961	9.3	2.16 [1.89-2.48]	<0.001
Others	16	0.6	32	0.4	48	0.5	1.60 [0.88-2.93]	0.121
Food								
Vegetarian	794	30.4	2601	33.7	3395	32.8	Reference	
Non-vegetarian	1792	68.5	5025	65.1	6817	65.9	1.16 [1.06-1.28]	0.002
NA	29	1.1	99	1.3	128	1.2		
Junk food								
No	1033	39.5	1994	25.8	3027	29.3	Reference	
Yes	1542	59.0	5624	72.8	7166	69.3	0.52 [0.48-0.58]	<0.001
NA	40	1.5	107	1.4	147	1.4		

\*CI=Confidence Interval; SD – Standard deviation; <sup>s</sup>Mean of age; <sup>t</sup>Standard deviation for age

risk of HLS issues compared to urban youth (adjusted odds ratio [AOR] =1.29; 95% confidence interval [CI] =1.15-1.45). Increasing years of schooling had protective association (AOR<sub>5-7 years</sub> = 0.89; 95% CI = 0.60–1.31, AOR<sub>8-10 years</sub> = 0.65; 95% CI = 0.46–0.91, AOR<sub>>10 years</sub> = 0.67; 95% CI = 0.49–0.93). Interestingly, unemployed youth had reduced risk of health and lifestyle issues (AOR = 0.52; 95% CI = 0.45–0.761), whereas business and salaried workers (AOR = 1.69; 95%CI = 1.33–2.13) and those involved in other occupations (AOR = 2.10; 95%CI = 1.73–2.56) were associated with almost twice the risk of self-report of HLS issues compared with students. Youth who reported relationship issues with parents had three times higher risk (AOR = 3.01; 95%CI = 2.47–3.68), whereas issues such as low self-awareness (AOR = 1.57; 95%CI = 1.33–1.85), low self-esteem (AOR = 1.29;

95%CI = 1.062–1.57), and emotional issues (AOR = 1.57; 95%CI = 1.31–1.89) had almost 1.5–2.5 times higher risk of developing health and lifestyle problems compared to their counterparts. Beneficiaries with education and academic issues such as time management (AOR = 1.23; 95%CI = 1.09–1.39) were 23% more likely to be associated with an increased risk of HLS issues. Beneficiaries with safety issues related to injuries and first-aid were four times more prone (AOR = 4.11; 95%CI = 3.07–5.50) than those who did not. Beneficiaries with gender role issues (AOR = 2.44; 95%CI = 1.43–4.15) were at 2.5 times greater risk of reporting HLS issues in comparison to beneficiaries who did not. Chewing tobacco, smoking, and drinking alcohol also contributed to an increased risk of HLS issues. Furthermore, youth who reported feeling anxious (AOR = 1.63; 95%CI = 1.41–1.88), angry with

**Table 3: Distribution of other risk factors in health and lifestyle issues among beneficiaries attending Yuva Spandana Kendras in 2017–2020 in Karnataka (n=10340)**

	Health and lifestyle issues				Total (10,340)		Odds ratio	
	Present (2,615)		Absent (7,725)		n	%	OR (CI)*	P
	n	%	n	%				
Suicidal attempts/ideation among								
Family	144	31.3	316	68.7	460	4.5	1.36 [1.11-1.67]	0.002
Friends	150	30.2	347	69.8	497	4.8	1.29 [1.06-1.57]	0.010
Suicidality								
Self	231	64.7	126	35.3	357	3.5	5.84 [4.68-7.29]	<0.001
Substance use								
Tobacco chewing	120	38.6	191	61.4	311	3.0	1.89 [1.50-2.39]	<0.001
Tobacco smoking	104	46.9	118	53.2	222	2.2	2.67 [2.04-3.48]	<0.001
Alcohol drinking	354	85.3	61	14.7	415	4.0	19.67 [14.93-25.91]	<0.001
Drugs	3	60.0	2	40.0	5	0.1	4.43 [0.74-26.55]	0.103
Issues reported								
Relationship issues	939	67.1	460	32.9	1399	13.5		
Relationship with parents	753	73.9	266	26.1	1019	9.9	11.34 [9.77-13.15]	<0.001
Intergenerational issues	228	79.7	58	20.3	286	2.8	12.62 [9.43-16.90]	<0.001
Marital/romantic relationship	202	71.1	82	28.9	284	2.8	7.80 [6.01-10.12]	<0.001
Peer relationship	123	68.3	57	31.7	180	1.7	6.63 [4.83-9.11]	<0.001
Virtual relationship	43	70.5	18	29.5	61	0.6	7.15 [4.12-12.43]	<0.001
Communication issues	125	60.4	82	39.6	207	2.0	4.67 [3.52-6.20]	<0.001
Others	4	12.9	27	87.1	31	0.3	0.43 [0.15-1.25]	0.123
Self-development issues	1252	47.1	1405	52.9	2657	25.7		
Low self-awareness	993	53.8	853	46.2	1846	17.9	4.93 [4.43-5.48]	<0.001
Low self-esteem	560	54.6	465	45.4	1025	9.9	4.25 [3.72-4.85]	<0.001
Emotional issues	549	54.2	464	45.8	1013	9.8	4.15 [3.64-4.74]	<0.001
Disturbed thinking pattern	220	40.0	330	60.0	550	5.3	2.05 [1.72-2.45]	<0.001
Lack of skills to handle negative emotions	125	39.4	192	60.6	317	3.1	1.96 [1.56-2.47]	<0.001
Others	14	11.7	106	88.3	120	1.7	0.38 [0.22-0.67]	0.001
Education and academic issues	1635	19.9	6566	80.1	8201	79.3		
Goal setting	1270	36.6	2201	63.4	3471	33.6	2.36 [2.16-2.59]	<0.001
Concentration/memory	870	24.9	2620	75.1	3490	33.8	0.97 [0.88-1.06]	0.546
Time-management	766	33.8	1503	66.2	2269	21.9	1.71 [1.54-1.89]	<0.001
Exam-anxiety	460	32.5	956	67.5	1416	13.7	1.51 [1.33-1.70]	<0.001
Education stress	455	26.5	1260	73.5	1715	16.6	1.08 [0.96-1.21]	0.196
Bullying/ragging	98	46.9	111	53.1	209	2.0	2.67 [2.02-3.51]	<0.001
Others	32	6.2	487	93.8	519	5.0	0.18 [0.12-0.26]	<0.001
Safety issues	657	75.3	216	24.7	873	8.4		
Injuries and first aid	530	83.9	102	16.1	632	6.1	18.99 [15.28-23.61]	<0.001
Information on legal aspects	144	67.9	68	32.1	212	2.1	6.56 [4.90-8.78]	<0.001
Gender-based violence	41	73.2	15	26.8	56	0.5	8.18 [4.52-14.81]	<0.001
Others	14	29.8	33	70.2	47	0.5	1.25 [0.67-2.34]	0.478
Gender, sex and sexuality issues	150	79.4	39	20.6	189	1.8		
Gender roles	105	81.4	24	18.6	129	1.3	13.42 [8.59-20.96]	<0.001
Gender discrimination issue	50	65.8	26	34.2	76	0.7	5.77 [3.58-9.29]	<0.001
Gender-based violence	25	83.3	5	16.7	30	0.3	14.90 [5.69-38.97]	<0.001
Child sexual abuse	17	89.5	2	10.5	19	0.2	25.26 [5.83-109.42]	<0.001
Sexually transmitted diseases	9	90.0	1	10.0	10	0.1	26.67 [3.37-210.63]	0.002
Others	1	33.3	2	66.7	3	0.0	1.47 [0.13-16.29]	0.750

OR (CI) = Odds ratio (confidence interval)

people around (AOR = 1.61; 95%CI = 1.25–2.07), and worthlessness (AOR = 2.21; 95%CI = 1.71–2.86) were associated with increased self-report of ill-health. The

goodness-of-fit statistic revealed that the model was a good fit (area under the curve = 0.7846; Hosmer–Lemeshow Chi-square value = 39.01; P value < 0.001).

**Table 4: Distribution of emotions experienced and health and lifestyle issues among beneficiaries attending Yuva Spandana Kendras during 2017–2020 in Karnataka (n=10,340)**

Variables	Health and lifestyle Issue				Total (10,340)		OR (CI)*
	Present (2,615)		Absent (7,725)		n	%	
	n	%	n	%			
Feel anxious	988	44.3	1241	55.7	2229	21.6	3.17 [2.81-3.50]
Feel depressed	398	51.9	369	48.1	767	7.4	3.57 [3.08-4.15]
Not interested to do any work	365	44.2	461	55.8	826	8.0	2.55 [2.21-2.95]
Feel tired or helpless	392	43.6	507	56.4	899	8.7	2.51 [2.18-2.88]
Worrying about problems	349	42.8	467	57.2	816	7.9	2.39 [2.06-2.77]
Feel like lost everything in life due to their problems	222	50.9	214	49.1	436	4.2	3.25 [2.68-3.95]
Feel incapable of making decisions or solve problems	401	44.3	505	55.7	906	8.8	2.58 [2.25-2.97]
Feel lonely	337	53.9	288	46.1	625	6.0	3.82 [3.24-4.50]
Unable to trust anyone	179	61.3	113	38.7	292	2.8	4.94 [3.89-6.29]
Forgetfulness	182	54.2	154	45.8	336	3.3	3.67 [2.95-4.57]
Difficulty in concentrating	195	55.7	155	44.3	350	3.4	3.93 [3.17-4.88]
Feel like running away from everyone	124	68.1	58	31.9	182	1.8	6.58 [4.80-9.01]
Angry with people around	227	56.2	177	43.8	404	3.9	4.05 [3.31-4.96]
Feel like failed in managing responsibilities	152	50.3	150	49.7	302	2.9	3.11 [2.47-3.92]
Feel guilty	220	45.7	261	54.3	481	4.7	2.62 [2.18-3.16]
Feel worthless	222	58.0	161	42.0	383	3.7	4.35 [3.53-5.36]

All variables are statistically significant with  $P < 0.001$

## DISCUSSION

This case record analysis addresses an important issue of precursors of HLS issues among 10,340 beneficiaries attending YMHP clinics in Karnataka. Overall, 2,615 (25%) beneficiaries reported HLS issues. Locale, years of schooling, occupation, junk food consumption, having issues related to relationships, self-development, education and academics, safety, gender, sex and sexuality, suicidal ideation, substance use, and experiencing emotions were associated with HLS issues among these beneficiaries.

Youth residing in rural areas, those involved in business or salaried occupations, having intergenerational issues, relationship issues with parents, low self-esteem, low self-awareness, facing time management issues in academics, safety issues related to injury and first aid, issues with gender roles, tobacco (chewing and smoking) and alcohol use had an increased risk of HLS issues. Further, youth who reported feeling anxious, having forgetfulness, feeling worthless, being angry with people around, difficulty concentrating were associated with greater risk of HLS issues.

Interestingly, increasing years of schooling, unemployment, and junk food consumption were associated with a reduced risk of HLS issues. In contrast to other studies, salaried youth and youngsters involved in business had a higher risk (compared to students) of developing health and lifestyle issues.<sup>[8,9]</sup> Age might be confounding this association as students tend to be younger compared to those working/doing business. Further, factors such as job stress/strain and burnout are known contributors to such an association.<sup>[10]</sup> This analysis lacks data related to job stress/strain or burnout. Our analysis revealed

that unemployed youth had fewer health and lifestyle issues than students. Known influencers for HLS issues among students such as stress associated with studies, possible financial constraints, poor time management, and parental and peer pressure might contribute to this interesting finding.<sup>[11,12]</sup> However, this could not be examined due to the lack of data. Although the association of unemployed youth with health and lifestyle issues is understandable as similar patterns are observed elsewhere,<sup>[13-15]</sup> the association of rural youth with the same in India, particularly in the state of Karnataka is alarming. This is possibly due to the reported agrarian crisis in the state coupled with migration to urban areas and loss of interest in traditional occupation as a result of factors, such as disturbance in regular farm activities due to uncertainties, and globalization leading to extensive developmental activities affecting primarily the rural youth.<sup>[16,17]</sup>

Youth experiencing emotions of anxiety, not being able to trust anyone, difficulty in concentration, feeling of worthlessness, and being angry with people around were more susceptible to report HLS similar to other studies. Concentration/memory factors were found to have protective association with health and life style issues in our study. To our knowledge, there is not enough evidence in the literature to support the same. It can be hypothesized that there might be a tendency to ignore HLS issues and bring concentration/memory issues to the forefront rather than the beneficiaries actually not having HLS issues. This serves as an opportunity to further explore this protective association.

The cross-sectional nature of this analysis limited understanding of the temporality of association, especially the protective association observed between junk food consumption and HLS

**Table 5: Multiple logistic regression analysis for factors affecting health and lifestyle issues among beneficiaries attending Yuva Spandana Kendras during 2017-2020 in Karnataka (n=10340)**

Variables	Crude odds ratio		Adjusted odds ratio	
	OR (CI)*	P	AOR (CI)*	P
Locality				
Urban			Reference	
Rural	1.40 [1.27-1.54]	<0.001	1.29 [1.15-1.45]	<0.001
Years of schooling				
0-4 years			Reference	
5-7 years	0.41 [0.30-0.55]	<0.001	0.89 [0.60-1.31]	0.561
8-10 years	0.25 [0.19-0.33]	<0.001	0.65 [0.46-0.91]	0.013
>10 years	0.27 [0.21-0.34]	<0.001	0.67 [0.49-0.93]	0.016
Occupation				
Students			Reference	
Unemployed	0.63 [0.55-0.72]	<0.001	0.52 [0.45-0.61]	<0.001
Business/salaried	2.26 [1.86-2.75]	<0.001	1.69 [1.33-2.13]	<0.001
Others	3.02 [2.58-3.55]	<0.001	2.10 [1.73-2.56]	<0.001
Junk food				
No			Reference	
Yes	0.52 [0.48-0.58]	<0.001	0.76 [0.68-0.84]	<0.001
Type of issues reported				
Relationship issues				
Relationship issues with parents	11.34 [9.77-13.15]	<0.001	3.01 [2.47-3.68]	<0.001
Intergenerational issues	12.62 [9.43-16.90]	<0.001	1.71 [1.19-2.45]	0.003
Self-development issues				
Low self-awareness	4.93 [4.43-5.48]	<0.001	1.57 [1.33-1.85]	<0.001
Low self-esteem	4.25 [3.72-4.85]	<0.001	1.29 [1.062-1.57]	0.01
Emotional issues	4.15 [3.64-4.74]	<0.001	1.57 [1.31-1.89]	<0.001
Education and academic issues				
Time- management	1.71 [1.54-1.89]	<0.001	1.23 [1.09-1.39]	0.001
Safety issues				
Injuries and first aid	18.99 [15.28-23.61]	<0.001	4.11 [3.07-5.50]	<0.001
Gender sex and sexuality issues				
Gender roles	13.42[8.59-20.96]	<0.001	2.44 [1.43-4.15]	0.001
Suicidal ideation				
Self	5.84 [4.68-7.29]	<0.001	1.91 [1.44-2.54]	<0.001
Substance use				
Tobacco chewing	1.89 [1.50-2.39]	<0.001	1.45 [1.09-1.93]	0.01
Tobacco smoking	2.67 [2.04-3.48]	<0.001	1.66 [1.18-2.32]	0.003
Alcohol drinking	19.67 [14.93-25.91]	<0.001	4.94 [3.52-6.93]	<0.001
Emotions experienced				
Feel anxious	3.17 [2.81-3.50]	<0.001	1.63 [1.41-1.88]	<0.001
Forgetfulness	3.67 [2.95-4.57]	<0.001	1.50 [1.14-1.98]	0.004
Difficulty in concentrating	3.93 [3.17-4.88]	<0.001	1.37 [1.035-1.81]	0.028
Angry with people around	4.05 [3.31-4.96]	<0.001	1.61 [1.25-2.07]	<0.001
Feel worthless	4.35 [3.53-5.36]	<0.001	2.21 [1.71-2.86]	<0.001

issues. Common knowledge of junk foods being unhealthy might have made those beneficiaries with HLS issues reduce/stop their consumption of junk foods. Our data lack information related to the quantity and frequency of consumption of junk food among the beneficiaries and thus it is difficult to explain this protective association.

The uniqueness of the study lies in looking “upstream” for risk factors for issues related to health and lifestyle among youth

rather than disease risk factors. Youth health and lifestyle are known and important determinants of the future health of an individual.<sup>[18,19]</sup> Further, we considered 57 important specific issues and risk factors potentially associated with HLS rather than broad issues. Youth is usually a period of prime health in an individual’s life. This is also a period of vulnerability as smoking, alcohol, and substance use are likely to begin during this stage of life along with disease process related to Non-Communicable Diseases (NCDs) and mental health.<sup>[19-22]</sup>

Thus, health promotion assumes importance and is a known cost-effective strategy amongst youth to achieve positive health.<sup>[23-25]</sup> The results of this study emphasize the value of early intervention to prevent diseases among youth as adults. Further, inferences from this study assumes importance and throws light on likely strategies for youth interventions in Karnataka. Case record analysis utilizing real-time digitized data from a large sample of 10,340 youth beneficiaries across 30 districts of Karnataka is a major strength of this study. Although we utilized program data, digitized data with appropriate validations and skip patterns ensured standardized and complete data collection, minimizing data entry errors. In addition, weekly, 5% of all visited and registered beneficiaries are randomly selected and contacted for feedback related to the quality of services received and for checking data accuracy. Thus, the data collected within the program can be assumed to be accurate and complete. Further, the hypothesized risk factors for health and lifestyle issues were identified through stakeholder consultation involving Yuva Parivarthakas, Yuva Samalochakas, and other project staff who are working on the ground. This makes the study results valid and reliable as it reflects the actual field situation and can be considered closer to the truth.

Within the program, Yuva Spandana, registration and the visit form data are collected based on self-report. Thus, social desirability bias related to the disclosure of certain sensitive information such as personal habits, emotions, and suicidality cannot be ruled out.<sup>[26]</sup> However, ensuring the confidentiality of beneficiaries, and training of Yuva Samalochakas and Yuva Parivarthakas on guidance provision including rapport building, active listening, and responding are likely to minimize this possibility of social desirability.<sup>[27,28]</sup> Although data collected were from routine guidance, built-in systems to ensure the quality of data collected within the program emphasized the reliability of study findings. One significant disadvantage of this study is that it only included clients who attended mental health promotion clinics across Karnataka. This demographic is thought to be distinct from the broader youth population in Karnataka. As a result, it may not be applicable to all Karnataka youth. The results of this study must be interpreted in light of this restriction.

## CONCLUSION

Considering these strengths and limitations, this comprehensive analysis of 57 hypothesized factors associated with the risk of HLS issues among youth in Karnataka, addressed an important but neglected component in an individual's life course. Most of these are modifiable risk factors for various HLS issues, especially non-communicable diseases and mental health problems among youth. These modifiable risk factors need to be the focus for health promotion among youth in countries such as India. Interesting observations in this study (association of rural youth, junk food consumption, unemployment, schooling, and concentration issues) need further research. The findings of this study reiterate the importance of early

recognition and early intervention of factors affecting HLS issues that are essential precursors of health and lifestyle problems in adult life. This study has important implications for youth health promotion in Karnataka and India in particular and countries such as India in general.

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## Conflicts of interest

There are no conflicts of interest.

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