ORIGINAL ARTICLE

Mental Health Status and Lifestyle Habits Among Adolescents in Ghaziabad: A Cross-Sectional Study

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ABSTRACT

Background: Adolescence is a critical developmental period marked by rapid physical, emotional, and social changes during which mental health problems commonly emerge. Lifestyle habits adopted during this phase significantly influence overall well-being. **Methods:** A school-based cross-sectional study was conducted among adolescents aged 14–19 years in selected schools of Ghaziabad, Uttar Pradesh, using a multistage random sampling technique. A pre-designed, pre-tested semi-structured questionnaire was used to collect data on socio-demographic characteristics, lifestyle habits, and mental health status using the Depression Anxiety Stress Scale-21 (DASS-21). Data were analysed using Statistical Package for the Social Sciences (SPSS) version 28. **Results:** A total of 440 adolescents participated, with nearly equal gender distribution. Most participants reported consumption of home-cooked meals, with frequent intake of fast food and irregular breakfast habits. Depressive symptoms were observed in 285(64.8%), anxiety in 198(45.0%), and stress in 127(28.9%) participants, with mild to moderate levels predominating. **Conclusion:** A considerable proportion of adolescents exhibited symptoms of depression, anxiety, and stress along with unhealthy lifestyle practices, highlighting the need for early identification and school-based preventive interventions.

KEYWORDS

Adolescents, Depression, Anxiety

INTRODUCTION

Adolescence is a critical developmental transition characterized by rapid physical, emotional, and social changes. Mental health problems such as depression, anxiety, and stress commonly emerge during this period and often remain under-recognized. Lifestyle behaviours adopted during adolescence, including dietary practices, play an important role in shaping overall health.(1)

According to the National Mental Health Survey (NMHS) 2015–16, the overall burden of mental morbidity in adolescents aged 13–17 years in India was 7.3%, with nearly one in twenty adolescents requiring active mental health interventions and a treatment gap of 80%, underscoring the magnitude of unmet mental health needs. As per National Family Health Survey 2019–2021, around 1 in 6 children in India show a rising trend of being overweight, while approximately 50% of Indian boys have engaged in at least one substance of abuse by the time they are in 9th grade.(2)

Lifestyle transitions characterized by unhealthy dietary practices, increased consumption of ultra-processed foods have become increasingly common among adolescents in India, yet their combined influence on depression, anxiety, and stress requires focused attention. Understanding the prevalence of mental health problems and unhealthy lifestyle habits is important for timely identification of modifiable risk factors and for guiding preventive strategies.

Aim: To assess the mental health status and its association with lifestyle habits among adolescents in Ghaziabad.

Objectives:

- To assess the socio-demographic profile and lifestyle habits among adolescents in Ghaziabad.
- To determine the prevalence and severity levels of depression, anxiety, and stress among adolescents.

MATERIAL & METHODS

Study Design, Setting, and Population: A school-based cross-sectional study was conducted in five urban administrative zones of Ghaziabad district, Uttar Pradesh. Adolescents aged 14–19 years enrolled in selected schools in the Ghaziabad district who were present on the day of data collection were included in the study.

Sample Size and Sampling: The calculated sample size was 434, based on the formula $n = Z^2p(100 - p)/l^2$, and the final sample was rounded to 440. The Z-value was set at 1.96, corresponding to a 95% confidence level. The prevalence of depression among adolescents, as reported in a study by Ashok Kumar et al. in New Delhi (2019), is 47.9%. An absolute allowable error (d) of 10%

was established, and the design effect (DEFF) was set to 1. A multistage random sampling technique was used: 5 urban zones were first selected. A list of government and private schools was created for each zone. From each selected school, 44 students were randomly selected using simple random sampling, yielding a final sample of 440 adolescents. If the required number of participants could not be obtained from a selected school, the nearest school of the same category (government/private) was included. Only one eligible participant per sampling unit was included in the study.

Inclusion and exclusion Criteria: The study included adolescents aged 14–19 years enrolled in selected schools in Ghaziabad who provided assent/consent, with parental consent where applicable, and excluded those who were absent on the day of the survey.

Data Collection: A pilot study was conducted among 40 adolescents prior to the main data collection in a school located outside the selected study area. Minor modifications were made to the wording of certain questions to improve clarity, and the data collected during the pilot study were excluded from the final analysis. Data were collected using a pre-designed, pre-tested semi-structured questionnaire administered through direct interaction in school settings. The questionnaire included socio-demographic details, lifestyle habits, and the Depression Anxiety Stress Scale-21 (DASS-21).

Statistical Analysis: Data were collected in Google Forms, entered into Microsoft Excel 2016, and analysed using Statistical Package for the Social Sciences (SPSS) version 28.0 (Armonk, New York: IBM Corp). Descriptive statistics, such as frequencies and percentages, were calculated and represented in charts and figures.

Ethical Considerations: Ethical clearance was obtained from the Institutional Ethics Committee F.NO. SU/R/2024/1350[112] prior to commencement of the study. Permission was taken from the school authorities. Informed assent from students and consent from parents/guardians were obtained, and confidentiality of participants was strictly maintained.

RESULTS

Among the 440 study participants, 104(23.6%), 95(21.6%), 81(18.4%), 68(15.5%), 54(12.3%), and 38(8.6%) participants were aged 19, 16, 17, 18, 15, and 14 years, respectively. (Table 1) Two hundred and thirty-two participants (52.7%) were female, and 208 (47.3%) were male. A total of 366 (83.2%) participants were Hindus, 220 (50.0%) were enrolled in government schools, and 220 (50.0%) were enrolled in private schools. According to the Kuppuswamy socioeconomic classification (2025), 229 (52.0%) participants belonged to the upper-middle class, followed by 97(22.0%) in the lower-middle class, 79(18.0%) in the upper class, and 35 (8.0%) in the upper-lower class.

Figure 1 shows that most adolescents consumed home-cooked food 387(88.0%) as their primary meal source, while reliance on takeaway/fast food 26(5.9%) and ready-made meals 21(4.8%) was limited. The commonly reported meal patterns were high calorie–low salt 187(42.5%) and low calorie–high salt 165(37.5%). A large proportion consumed 2–4 servings of fruits and vegetables per day 176(40.0%). Instant ready-to-eat foods and fast foods were most often taken 1–2 times per week 245(55.7%) and 246(55.9%) respectively, whereas eating out at restaurants was frequently reported as 0 times per week 202(45.9%).

Among the study participants, 155(35.2%) had normal depression levels, while 132(30.0%) and 125(28.4%) participants fell in the mild and moderate depression categories, respectively. (Table 2) Severe depression was observed in 20(4.5%) participants, and extremely severe depression in 8(1.8%). With regard to anxiety levels, 242(55.0%) participants were within the normal range, 63(14.3%) had mild anxiety, 89(20.2%) showed moderate anxiety, 22(5.0%) had severe anxiety, and 24(5.5%) participants were in the extremely severe anxiety category. In terms of stress levels, 313(71.1%) participants were classified as normal, 90(20.5%) had mild stress, 24(5.5%) showed moderate stress, and 13(3.0%) participants had severe stress, while none of the participants fell into the extremely severe stress category.

Table I: Sociodemographic profile of Participants. (N=440)

Socio-demographic Characteristics	Number (n)	Percent (%)
Age		
14 (Fourteen)	38	8.6
15 (Fifteen)	54	12.3
16 (Sixteen)	95	21.6
17 (Seventeen)	81	18.4
18 (Eighteen)	68	15.5
19 (Nineteen)	104	23.6
Gender		
Male	208	47.3
Female	232	52.7
Religion		
Hindu	366	83.2
Muslim	47	10.7
Christian	7	1.6
Sikh	18	4.1
Others	2	0.5
Type of School Attended		
Government	220	50
Private	220	50
Socio-economic Class (kuppuswamy scale of year 2025)		
5-10 (Upper-Lower)	35	8
11-15 (Lower-middle)	97	22
16-25 (Upper-Middle)	229	52
26-29 (Upper)	79	18
Total	**440**	**100**

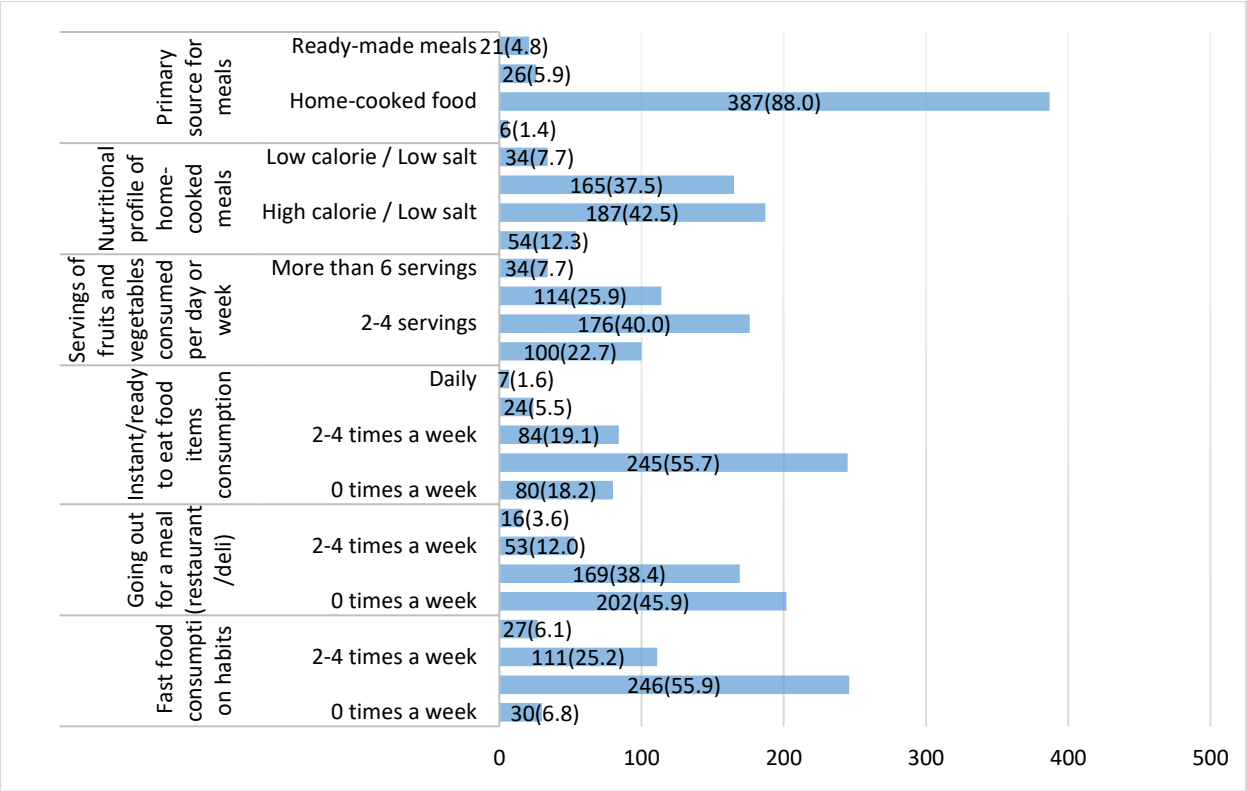
Table 2: Distribution of Study Participants According to DASS-21 Scores. (N=440)

S. No	DASS-21 Category	Score Range	Number (n=440)	Percentage (%)
Depression				
1.	Normal	0–9	155	35.2
2.	Mild	10–13	132	30.0
3.	Moderate	14–20	125	28.4
4.	Severe	21–27	20	4.5
5.	Extremely Severe	≥28	8	1.8

S. No	DASS-21 Category	Score Range	Number (n=440)	Percentage (%)
Anxiety				
1.	Normal	0–7	242	55.0
2.	Mild	8-9	63	14.3
3.	Moderate	10-14	89	20.2
4.	Severe	15-19	22	5.0
5.	Extremely Severe	≥20	24	5.5

S. No	DASS-21 Category	Score Range	Number (n=440)	Percentage (%)
Stress				
1.	Normal	0–14	313	71.1
2.	Mild	15-18	90	20.5
3.	Moderate	19-25	24	5.5
4.	Severe	26-33	13	3.0
5.	Extremely Severe	≥34	0	0.0

Figure 1: Distribution of study participants according to their lifestyle habits. (N=440)



DISCUSSION

Socio-demographic details of the study population: In the present study, a total of 440 adolescents aged 14–19 years were included, comprising 232(52.7%) girls and 208(47.3%) boys. A cross-sectional study conducted in New Delhi on the burden of depression, anxiety, and stress included adolescents aged 14–19 years with a total sample size of 326 students. That study reported a higher proportion of boys 209(64%) compared to girls 117(36%), with participants drawn from two schools in New Delhi. Overall, both studies assessed school-going adolescents within the same age group and showed a predominance of male participants reflecting a broadly similar demographic profile. (1)

In the present cross-sectional study, most of the adolescents belonged to the Hindu religion 366(83.2%). A similar distribution was observed in a study conducted in Dehradun on the prevalence of depression among adolescents, where Hindus formed the majority 523(87.2%). The similarity in religious composition seen in both studies reflects the common demographic pattern of North India, where Hindus constitute the larger population group. (3)

In the present study, 229 (52.0%) adolescents belonged to the upper-middle socioeconomic class, followed by 97 (22.0%) in the lower-middle class, 79 (18.0%) in the upper class, and 35 (8.0%) in the upper-lower class, according to the Kuppuswamy Scale (2025). It was observed that most participants were concentrated in the middle and upper-middle socioeconomic categories. A similar pattern was observed in a study done on correlates of depression, anxiety and stress among high school adolescents conducted in West Bengal, where 432 (53.2%) students belonged to middle, upper-middle, and upper socioeconomic groups, and 380 (46.8%) were from lower groups. This indicates that, in both studies, many adolescents were from relatively better socioeconomic backgrounds. Thus, the socioeconomic distribution in the present study aligns well with that in the latter study, suggesting that many adolescents in recent Indian studies are situated in middle- and upper-middle socioeconomic groups. (4)

Lifestyle Habits of the Study Participants: In the present study, 246 (55.9%) adolescents consumed fast food 1–2 times per week, followed by 111 (25.2%) consuming it 2–4 times per week. A smaller proportion reported very frequent intake, with 27 (6.1%) consuming fast food 4–6

times per week and 26 (5.9%) consuming it daily, while 30 (6.8%) did not consume fast food at all. It was observed that more than half of the participants were occasional weekly consumers of fast food. A cross-sectional study conducted on lifestyle habits of adolescents and sleep pattern in Nepal also reported regular fast-food intake among adolescents. Majority 335 (53.4%) consumed fast food 2–3 days per week, 227 (36.2%) consumed it four or more days per week, and 65 (10.3%) consumed it daily, showing a higher tendency toward frequent consumption. Comparing both studies, the findings suggest that although fast-food intake was mostly occasional in the present study, the Nepal study demonstrated a much higher proportion of adolescents consuming fast food multiple times per week.(5)

In the current study, a large proportion of adolescents reported limited intake of restaurant or outside food during a typical week. Nearly half of the participants 202(45.9%) stated that they did not eat outside food at all, while 169(38.4%) reported eating out only 1–2 times per week. Fewer adolescents reported more frequent intake, with 53(12.0%) eating out 2–4 times per week and only 16(3.6%) reporting 4–6 times per week. This suggests that regular consumption of restaurant or outside food was relatively low among the study participants. In contrast, a study on adolescent obesity conducted in Meerut, Uttar Pradesh, reported a higher frequency of fast-food consumption. In that study, most adolescents consumed fast food either occasionally 320(36.7%) or 2–3 times per week 430(49.3%), while daily intake was reported by 96(11.0%), and only a small proportion reported no fast-food consumption 26(3.0%). Thus, the present study shows a comparatively lower frequency of outside food consumption when compared to the higher fast-food intake reported by the latter study. This difference may be related to variations in study setting, socioeconomic background, food availability, and local dietary habits.(6)

It was observed in the present study that the majority of adolescents, 245 (55.7%), consumed ready-to-eat food items 1–2 times per week, while 84 (19.1%) reported consumption 2–4 times per week. A smaller proportion of participants consumed ready-to-eat food more frequently, with 24 (5.5%) consuming it 4–6 times per week and only 7 (1.6%) reporting daily consumption. On the other hand, 80 (18.2%) adolescents reported not consuming ready-to-eat food during a typical week. Similar observations were observed in a study conducted among urban private school students on the prevalence of excessive weight and underweight and the associated knowledge, carried out in New Delhi, where a substantial proportion 391(5 4%) of participants consumed instant food once or twice per week. The similarity in findings may be due to the urban lifestyle, easy availability of packaged foods, and a preference for convenient food options among adolescents. These eating habits are concerning, as regular intake of ready-to-eat foods is linked to unhealthy diets, indicating the need for dietary education and encouragement of healthy eating practices among adolescents. (7)

The present study showed that the majority of adolescents consumed 2–4 servings of fruits per day or week (40.0%), followed by 4–6 servings (25.9%), while 100(22.7%) consumed only 1–2 servings and 34(7.7%) consumed more than six servings. Overall, a considerable proportion of participants had suboptimal intake of fruits. Similar findings were reported in a study conducted among adolescent students in Curitiba in Brazil on consumption of fruits and vegetables where 242(71%) of adolescents had inadequate fruit intake and 99(29%) meeting adequate fruit consumption levels. This suggests that fruit consumption was comparatively better in the present study than in the Brazilian study. However, both studies underline that optimal fruit intake remains insufficient among adolescents, emphasizing the need for targeted nutritional interventions.(8)

In the present study, a large majority of the participants 387 (88.0%) reported home-cooked food as their primary source of meals, while a smaller proportion relied on purchased takeout or fast food26 (5.9%) and ready-made meals 21 (4.8%). Consumption of canned food products was minimal 6(1.4%). Similar study was done in China among Chinese adolescents, where eating home cooked food constituted the major sources of meals 603(93.8%) and fast food and take-out food consumption was reported by a relatively smaller proportion 40(6.2%)of participants. Given the established association between dietary patterns and mental health outcomes, the observed eating practices in the present study may have a protective role against adverse mental health conditions among adolescents.(9)

In the present study, it was observed that 140 (31.8%) of the participants reported consuming breakfast every day, while 110 (25.0%) consumed breakfast 4–6 days per week. However, a substantial proportion of participants reported irregular breakfast habits, with 106 (24.1%) consuming breakfast 2–4 days per week and 61 (13.9%) consuming breakfast only 1–2 days per week. Notably, 23 (5.2%) of the participants reported that they rarely or never consumed breakfast, highlighting a concerning segment of adolescents with poor dietary routines. The findings of the present study are comparable to the study on lifestyle habits of urban school going adolescents carried out in New Delhi where it was observed that the majority of the participants, 723 (77.2%), reported consuming breakfast every day, while 173 (18.5%) consumed breakfast only a few times a week, and a small proportion 41 (4.4%), reported that they never consumed breakfast. The present study shows that although a proportion of adolescents consumed breakfast regularly, a significant number followed irregular breakfast habits, with many consuming breakfasts only a few days per week or rarely. This indicates that breakfast skipping remains a common dietary practice among adolescents. In contrast, the latter study reported a higher proportion of adolescents consuming breakfast daily and a comparatively smaller proportion who never consumed breakfast. Despite this difference, both studies highlight that irregular breakfast consumption is prevalent among urban adolescents, suggesting the need for increased awareness to promote regular and healthy breakfast habits. (10)

In the present study, it was observed that most adolescents, 268 (60.9%), consumed aerated or carbonated drinks 1–2 times per week, while 75 (17.0%) consumed them 2–4 times per week. A smaller

proportion, 17 (3.9%), consumed these drinks 4–6 times per week, and only 6 (1.4%) reported daily consumption. However, 74 (16.8%) of the participants reported that they did not consume aerated drinks at all. Similar findings were reported in the study conducted on obesity in adolescents in Meerut, U.P. Both studies show that even though daily intake of aerated drinks is low, many adolescents consume these drinks weekly or occasionally, which reflects unhealthy eating habits among urban adolescents. (11)

In the present study, more than half of the adolescents 252(57.3%) consumed sweets one to two times per week, followed by 111(25.2%) who consumed sweets two to four times per week. Only a small proportion reported higher intake, with 23(5.2%) consuming sweets four to six times per week and just 6(1.4%) consuming sweets daily, while 48(10.9%) adolescents did not consume sweets during a typical week. In contrast, a study conducted in Nairobi, Kenya, reported wide availability and frequent access to sweet items such as sugar, chocolates, lollipops, and sweetened beverages within school canteens, suggesting more regular and unrestricted consumption. Overall, both studies show that sweets are commonly consumed by adolescents. However, in the present study, daily consumption of sweets was reported by only a small number of participants, with most adolescents consuming sweets occasionally or on a weekly basis. In contrast, the Kenyan study reported wide availability of sweet foods within school canteens, suggesting more frequent and unrestricted access to such items. This difference highlights variation in food availability and school canteen food availability between the two study settings, which may influence the pattern of sweet consumption among adolescents.(12)

Prevalence of Depression, Anxiety, and Stress in the study population: Among the 440 participants,155(35.2%) adolescents belonged in the normal category. Mild and moderate depression were noted in 132(30.0%) and 125(28.4%) participants, respectively, while severe and extremely severe depression were reported in 20(4.5) and 8(1.8%) adolescents. These findings indicate that nearly two-thirds of the study population exhibited some degree of depressive symptoms, with mild to moderate levels forming the larger share. With respect to anxiety, more than half of the adolescents, 242(55.0%), were classified under the normal category. Mild anxiety was present in 63(14.3%), whereas moderate anxiety was reported by 89(20.2%) participants. Severe and extremely severe anxiety levels were observed in 22(5.0%) and 24(5.5%) adolescents, respectively. Overall, anxiety symptoms were present in a considerable proportion of participants, with moderate to extremely severe anxiety accounting for a notable segment of the study population. Regarding stress levels, 313 (71.1%) adolescents had scores within the normal range. Mild stress was observed in 90(20.5%), while moderate and severe stress levels were reported in 24(5.5%) and 13(3.0%) participants, respectively. None of the adolescents were found to have extremely severe stress. Compared to depression and anxiety, stress symptoms were less prevalent and largely confined to the mild category. When the present findings are compared with the study conducted in Delhi assessing the prevalence of depression, anxiety, and stress, a broadly similar pattern is evident, though with a higher overall prevalence reported in the comparative study. In that study, depression, anxiety, and stress were reported among 156(47.9%), 213(65.3%), and 169(51.8%) adolescents, respectively. Moderate depression and anxiety were the most reported categories, accounting for 73(46.8%) and 71(33.3%) participants, while mild stress predominated at 103(60.9%). In contrast, the present study shows comparatively lower proportions of moderate to severe psychological morbidity, particularly for stress, where most adolescents remained within the normal range. both studies show that depression, anxiety and stress are present among adolescents. However, the findings of the present study indicate a comparatively lower level of severe mental health problems. Even so, a considerable number of adolescents were found to have mild to moderate depression and anxiety, highlighting the need for early identification and preventive mental health measures in this age group. (13)

CONCLUSION

The present study highlights that a notable proportion of adolescents in urban Ghaziabad experience symptoms of depression, anxiety, and stress alongside suboptimal lifestyle practices such as frequent fast-food and aerated drink consumption, irregular breakfast habits, and variable dietary patterns. These findings emphasize the importance of routine mental health screening, nutrition and lifestyle education, and school-based health promotion strategies to support overall adolescent well-being.

RECOMMENDATION

The findings of the present study highlight the need for implementation of regular school-based mental health screening programs for early identification of depression, anxiety, and stress among adolescents. Health education sessions focusing on healthy dietary practices, regular breakfast consumption, reduced fast-food and aerated drink intake, and promotion of physical activity should be strengthened. Integration of mental health services with school health programs and capacity building of teachers for early recognition of psychological problems is recommended. Parental awareness programs should also be conducted to promote supportive home environments for adolescents.

LIMITATION OF THE STUDY

The present study has certain limitations. Being a cross-sectional study, causal relationships between lifestyle factors and mental health outcomes cannot be established. The data were collected using self-reported questionnaires, which may be subject to recall bias and social desirability bias. The study was conducted in selected schools of Ghaziabad, which may limit the generalizability of findings to other regions.

RELEVANCE OF THE STUDY

The study provides important insights into the combined burden of mental health problems and lifestyle-related risk factors among adolescents in an urban Indian setting.

It adds to the existing body of evidence by highlighting the prevalence and severity levels of depression, anxiety, and stress along with associated lifestyle patterns, thereby emphasizing the need for integrated school-based preventive strategies.

Authors Contribution

All authors have contributed equally.

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Nil

Conflict of Interest

There are no conflicts of interest.

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Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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