



## Exploring the Relationship Between Green Space Exposure and Mental Health among Adolescents

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### Abstract

Exposure to green spaces has become a significant environmental factor influencing mental health, especially in adolescents who are underlying vital phases of psychological and emotional development. The aims of this study are to enquire about green space exposure and mental health among adolescents and to explore the relationship between green space exposure and mental health among adolescents. To conduct this study the investigator used descriptive survey method. Both primary and secondary data are considered as sources of data. 120 adolescents of Kamrup district are selected randomly as sample for the study. To collect the data investigator has used a self-structured questionnaire. The findings of the study indicate high level of green space exposure and moderate level of mental health among adolescents. This study also observed a significant positive correlation between green space exposure and mental health.

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### Introduction

Globally, one out of seven 10-19 years adolescents face different mental problems, accounting for 15% of global burden of disease in this age group. Suicide is the third leading cause of death among those aged 15-29 years old (WHO report, 2025). At this stage they facing numerous challenges, urge to fit in with peers and the quest for self-discovery creates anxiety, depression and behavioural disorders among adolescents. Influence social media and societal gender expectations create a gap between an adolescent's actual life experiences and their future hopes. This makes adolescence period more critical and adversely affect their mental health and well-being. Adolescence can be seen as a promising phase, as prevention and intervention strategies for emotional stress during this stage can significantly impact an individual's future mental health (Nishida *et al.* 2016) <sup>[15]</sup>.

Green spaces refer to the both naturally existing and human created areas including parks with green grass fields, sports field, woodland, farms, riverside footpaths etc. Exposure to green spaces helps to improved mental health conditions of adolescents by reducing the risk of depression, symptoms and psychological stress (Gascon *et al.*, 2015) <sup>[1]</sup>. Rapid urbanization diminishes the changes for people to engage with natural environments and green spaces. Beyond the influence of personal and community socio-economic status, exposure to greenspace is linked to various beneficial outcomes such as reduced mental health issues and improved cognitive abilities and academic performance in adolescents, which can enhance long term well-being and success. However, the underlying mechanisms driving this connection are not well understood. Discovering this pathway that relate greenspace exposure to positive results could help improve interconnections and policies designed to foster such outcomes (Li *et al.*, 2025).

### Review of related literature

Huynh *et al.* (2013) <sup>[14]</sup> undertook a study on exposure to public natural space as a protective factor for emotional well-being among young people in Canada. Cross sectional method was employed to conduct this study. This study concluded that more than half of the youth had positive emotional well-being. It is also observed weak and inconsistent relationship between natural space and positive emotional well-being. However, some protective effects were noted in smaller cities. Positive emotional well-being had a stronger connection with various factors such as demographics, family wealth and views of the local environment.

Reklaitiene *et al.* (2014) <sup>[8]</sup> explored the relationship between green space, depressive symptoms and perceived general health in urban population. Cross sectional method was employed for this study. The result of the study shown that person who had spent time in green spaces had good health and less depressive symptoms as compared to those who had less exposure to green spaces. This study also found a significant relationship between green space, depressive symptoms and general health.

Kondo *et al.* (2018) <sup>[12]</sup> conducted a study on impact of urban green space on human health through systematic review analysis. This study found persistent negative relationship between urban green space exposure and mortality rate, violence and positive relation with attention, mood and physical activity. The findings of the study also observed no significant relationship between urban green space exposure and general health such as weight status, depression and stress.

Zeng *et al.* (2023) <sup>[7]</sup> explored longitudinal associations of neighbourhood environmental exposure with mental health problems during adolescence. TRAILS (Tracking Adolescents Individual Lives Survey) was applied for this study. The findings of the study revealed that adolescents facing higher air pollution and lower social fragmentation experienced increased externalizing problems. This link to air pollution was strong only for those who moved, while the connection was relevant only for those who stayed in one place. At a broader level, adolescents exposed to louder noise experienced more externalizing problems, while those in more deprived areas and with lower social fragmentation tended to have more internalizing issues. Additionally, this study observed a positive connection between air pollution and noise pollution with internalizing problems and less consistent due to a significant correlation between the two factors.

K *et al.* (2025) conducted a cross-sectional study on 330 adults aged 18 years and above to examine the association of green spaces on mental health and well-being in urban Bengaluru. To assess their mental health status WHO-5 well-being index and K-6 psychological distress scale was used. The findings of the study revealed that most of the participants had access to green spaces near their home. Average distance from their home to green space was 2.47 kilometres and most commonly 92.1% participants used public parks as a type of green space. After analysing the data, it was observed that 89.4% of participants had good well-being and most of the participants i.e. 96.1% had severe psychological distress. The study concludes that frequently exposure to green spaces improved mental health as measured by WHO-5 well-being index.

The result of the study also observed no significant relationship between green space exposure and psychological distress.

### Need and significance of the study

Adolescence represents a crucial stage of development during which the brain continues to mature and often they face difficulties to cope with the pressures like anxiety, stress and depression. Worldwide, there is a concerning increase in mental health disorders among youth and a report of WHO it indicating that approximately half of all such issues begin by age 14. This highlights the urgent necessity to identify protective factors within their environments. Green spaces such as parks, forests, school gardens and tree-lined areas have emerged as a potentially significant yet underexplored influence on mental health. Theories like Attention Retention Theory (Rachel Kaplan and Stephen Kaplan, 1989,1995) and Stress Reduction Theory (Roger Ulrich 1983) highlights that green spaces and natural environments can alleviate psychological stress, cognitive fatigue and optimized cognitive performance, enhanced health outcomes and revitalizing our mental focus, boost both mental health and productivity. However, ongoing urbanization is shrinking access to green spaces, which may inadvertently exacerbate mental health issues and widen physical health problems. This study is aligned with SDG 3(Good health) and SDG 11(Sustainable Cities) by linking green space exposure and mental health. Examining relationship between green space exposure and mental health among adolescents is crucial not only for enhancing scientific understanding of the environmental factors influencing adolescent mental health but also for providing tangible insights that can inform urban development, school infrastructure and public health policies. This research could lead to the creation of greener healthier spaces that foster mental health of future generations.

### Objectives of the Study

1. To enquire the green space exposure of adolescents.
2. To find out the level of mental health of adolescents.
3. To explore the relationship between green space exposure and mental health of adolescents.

### Hypothesis

Ho: There is no significant relationship between green space exposure and mental health of the adolescents.

### Delimitations of the stud

The study is delimited to only adolescent students. Both male and female students aged range from 15 to 19 years of Kamrup district only.

### Research Methodology

The present study attempts to highlight the relationship between green space exposure and mental health of adolescents. To conduct this study descriptive survey method was employed with a sample of 120 adolescents drawn randomly from different educational institutions of Kamrup district. Ages of participants ranged from 15 to 19 years. To address the core objectives of the study, the investigator has constructed a self-structured questionnaire.

To ease the data collection procedure a google form was created as a digital platform. A unique link was created for the participants and it was shared through e-mail and

WhatsApp. The data collection period lasted almost 2-3 weeks, giving participants ample time to complete the questionnaire.

representation in accordance with the objectives and the hypotheses that were developed.

**Discussion and Analysis**

The findings of the are presented in tables and graphical

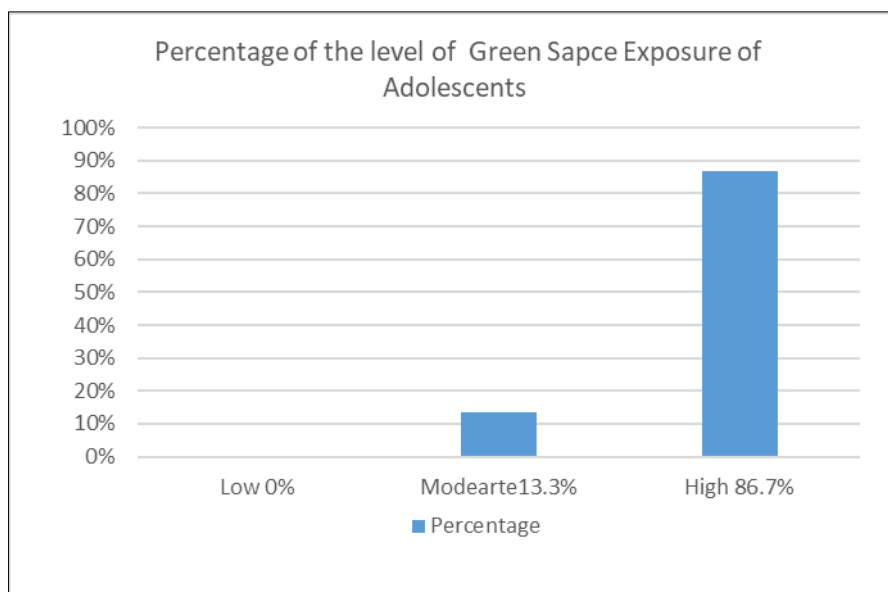
**Objective No.1:** To enquire the green space exposure of adolescents.

**Table 1:** Shows the level of Green Space Exposure of Adolescents.

Variable	Level of Green Space Exposure	Score Range	No. of Adolescents (Frequency)	Percentage
Green Space Exposure	Low	15-30	0	0%
	Moderate	31-45	16	13.3%
	High	46-60	104	86.7%
Total			120	100%

Table No.1, reveals that among 120 adolescents, majority of adolescents 86.7% i.e. 104 adolescents exhibit higher level of green space exposure and 16 adolescents which is 13.3 % of

the total adolescents fall under moderate level of green space exposure. The adolescents have moderate to high level of green space exposure.



**Fig 1:** Showing percentage of the level of Green Space Exposure of Adolescents.

**Objective No.2:** To find out the level of Mental Health of adolescents.

**Table 2:** Shows the level Mental Health of Adolescents.

Variable	Level of Mental Health	Score Range	No. of Adolescents (Frequency)	Percentage
Mental Health	Low	15-30	2	1.6 %
	Moderate	31-45	92	76.7 %
	High	46-60	26	21.7 %
Total			120	100 %

Findings of the table no.2 shows that among 120 adolescents, 2 adolescents (1.6%) exhibit low levels of mental health, 92 adolescents (76.7%) show moderate levels of mental health

and 26 adolescents which is 21.7% of the total adolescents falls under higher level of mental health.

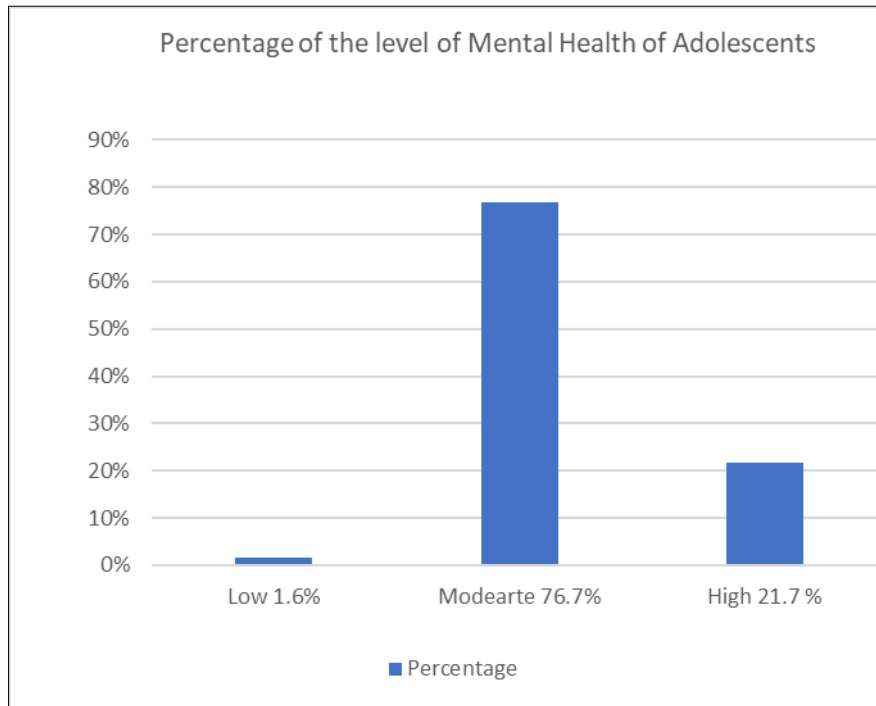


Fig 2: Showing percentage of the level of Mental Health of Adolescents.

**Objective No. 3:** To explore the relationship between green space exposure and mental well health of adolescents.

Ho: There is no significant relationship between green space exposure and mental health of the adolescents.

Table 3: Shows the Spearman’s rho Correlation co-efficient between Green Space Exposure and Mental Health of the Adolescents

Variable	Green Space Exposure	Mental Health
Green Space Exposure	1.000	0.309**
Mental Health	0.309**	1.000
p-value (2-tailed)	—	< 0.001
N	120	120

**Correlation is significant at the 0.01 level (2-tailed)**

Table No.3 shows the relationship between green space exposure and mental health as analysed using Spearman’s rho correlation. The obtained correlation data indicated  $r_s = .309$  with p value  $< .001$  at  $N=120$ . The p value is less than .001 and confirming statistically significant of the relationship. This means that adolescents with more exposure to green spaces generally report better mental health. The findings of the study indicate a low to moderate positive relationship between green space exposure and mental health of adolescents. Therefore, the null hypothesis stating that there is no significant relationship between green space exposure and mental health is rejected.

**Discussion**

The primary objective of the study was to examine the relationship between green space exposure and mental health of adolescents. The findings of the study indicated a significant positive low moderate relationship between green space exposure and mental health of adolescents. Zeng *et al.* (2023) [7] and Reklaitiene *et al.* (2014) [8] supports the result of the present objective, that green space exposure is positively relatively related to mental health. The result of (Huynh *et al.*2013; Kundo *et al.*,2018 and K *et al.*,2025) shows some contradiction with the result of the present study as in that study, the investigator had found negative, weak, inconsistent and no significant relationship between green space exposure and mental health.

The findings of the study holds practical, psychological, educational and social implications. Practically it can assist policymakers, urban planners and educational institutions in developing and sustaining green spaces like parks, gardens in educational institute and open areas that foster mental health. From a psychological and educational perspectives, this study can assist the educational institutions in creating interventions and programs (such as outdoor activities, eco-therapy and nature-based learning) that improve adolescent’s emotional health, alleviate stress and enhance focus and overall mental health. Socially, this study has the potential to inform parents, educators and communities about the crucial role of nature in the lives of adolescents and promote the importance of maintaining green spaces for their benefits.

**Conclusion**

As urbanization accelerates access to green space is increasingly diminishing. The present study investigated on green space exposure and mental health of adolescents and the relationship between these two factors. The findings of the study reveal high level of green space exposure and moderate level of mental health of adolescents. However, the findings of the study also observed a significant positive relationship between green space exposure and mental health aligns with previous research. While, the correlation was low to moderate and it indicates that exposure to green spaces is one of the several contributing factor for a sound mental health among adolescents. The study highlights the necessity

for families, educational institutions and policy makers to acknowledge the importance of exposure to green spaces in their lives and encourages engagement with natural environment.

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