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Original Research Article

A survey on the prevalence of acrophobia-induced symptoms among amateur trekkers

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ABSTRACT

Background: Acrophobia, or fear of heights, is a specific phobia associated with significant psychological and physiological distress. Amateur trekkers are frequently exposed to elevated terrains that may trigger symptoms such as dizziness, anxiety, palpitations, and fear of falling. However, limited research has evaluated the prevalence and severity of acrophobia-induced symptoms among amateur trekkers using structured assessment tools.
Methods: A survey-based observational study was conducted among 50 amateur trekkers in the Loni area using simple random sampling. Data were collected using the self-developed and validated AcroTrek Survey Questionnaire, which assessed height-related discomfort, physiological reactions, psychological responses, and the impact on trekking experience. Responses were recorded on a 5-point Likert scale and analysed descriptively. Gender-related findings were interpreted in accordance with the Sex and Gender Equity in Research (SAGER) guidelines.
Results: All participants reported some degree of acrophobia-induced symptoms. The majority (74%) demonstrated moderate severity, while 12% had mild and 14% had severe symptoms. Symptoms were observed across all age groups. Although a higher number of female participants reported symptoms, findings were interpreted cautiously due to unequal gender distribution, following SAGER guidelines.
Conclusions: Acrophobia-induced symptoms are highly prevalent among amateur trekkers, predominantly at moderate severity levels. Early identification using structured screening tools such as the AcroTrek Questionnaire may enhance safety, confidence, and overall trekking experience.

Keywords: Acrophobia, Amateur trekkers, Anxiety, Fear of heights, Trekking safety

INTRODUCTION

Acrophobia, commonly known as fear of heights, is classified as a specific phobia under the natural environment subtype in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) published by the American Psychiatric Association.[1] It is characterized by an intense, persistent, and excessive fear triggered by exposure to heights or even anticipation of such exposure.[1] Individuals with acrophobia commonly experience immediate anxiety responses including dizziness, trembling, sweating, palpitations, shortness of breath, and panic attacks.[3] The fear is typically disproportionate to the actual level of danger and often results in avoidance of height-related situations or endurance with marked distress.[3] Acrophobia is recognized as one of the most common forms of specific phobia.[7] Epidemiological evidence suggests that approximately 1 in 20 adults may experience clinically significant fear of heights.[5] It is also classified as an anxiety disorder in both the International Classification of Diseases (ICD-10) and DSM-IV systems.[8] Individuals frequently acknowledge that their

fear is excessive or irrational, yet they remain unable to control their reaction.[3] Persistent avoidance of height-related environments such as balconies, staircases, bridges, high-rise buildings, and elevators may interfere with daily functioning and limit occupational, social, and recreational activities.[1] Over time, this pattern of fear and avoidance can contribute to psychological distress, reduced confidence, and diminished quality of life.[4] In clinical and research settings, the diagnosis of acrophobia is based on pronounced psychological and physiological symptoms that arise when an individual is exposed to heights.[3] Several assessment tools have been developed to evaluate fear of heights in general populations.[3] Questionnaires designed to assess sensitivity to fear of heights have typically relied on two main approaches. Some compare individuals' self-reported experiences with their actual behaviours in height-related situations, while others focus on cognitive interpretations of height-related scenarios to identify potential biases associated with acrophobia symptoms.[3] However, most existing tools are developed for general clinical evaluation and are not specifically tailored to assess acrophobia-related symptoms in recreational or outdoor activity settings.[3] Amateur trekkers are frequently exposed to elevated terrains, steep slopes, cliffs, and high-altitude viewpoints, which may provoke anxiety, dizziness, imbalance, and fear of falling.[3] These symptoms may affect balance, confidence, decision-making, and overall trekking safety. Despite the potential impact on performance and safety, structured evaluation of acrophobia-induced symptoms among amateur trekkers remains limited in current literature.[3] Therefore, the present study aimed to assess the prevalence and severity of acrophobia-induced symptoms among amateur trekkers using a self-developed and validated questionnaire (AcroTrek Survey Questionnaire).[3]

METHODS

The study was conducted among amateur trekkers in the Loni area. The study received approval from Ethical Committee of Pravara Institute of Medical Sciences, Loni on 29 March 2025. The study period was from August 2025 to February 2026. The study was a survey-based observational study.

Survey instrument

Questionnaire on acrophobia

"*Acrotrek survey*: Acrophobia-Induced Symptoms Questionnaire for Amateur Trekkers"

For the study, sample size was 50. Participants were selected on the basis of inclusion and exclusion criteria. Participants aged 18 years and above, including both male and female individuals, were included in the study. Individuals with a previous history of acrophobia, anxiety disorder, or prior experience of acrophobia-induced symptoms during trekking were considered eligible for participation. Professional or highly experienced trekkers were excluded from the study. Individuals who had never participated in trekking at high altitudes, those below 18 years of age, and those who were unwilling to participate or unable to provide informed consent were also excluded.

Procedure

The data collection procedure involved several structured steps. Initially, the study design was finalized, and participants were selected according to the predefined inclusion and exclusion criteria. Written informed consent was obtained from all participants prior to their enrolment in the study. Data were collected using the self-designed AcroTrek Questionnaire, which consisted of four sections with five questions in each section. Participant responses were recorded using a 5-point Likert scale. The total possible score of the questionnaire was 100. The questionnaire was administered to all participants, and they were instructed to complete it carefully based on their trekking experiences. The collected data were subsequently compiled, summarized, and analysed. Outcome measures were determined based on the total scores obtained from the questionnaire.

Data analysis

The collected data were entered into Microsoft Excel and analysed using descriptive statistical methods including frequency and percentage.

RESULTS

A total of 50 amateur trekkers participated in the study. Among them, 21 (42%) were males and 29 (58%) were females. Although a higher number of females reported acrophobia-induced symptoms, this finding should be interpreted cautiously due to unequal gender representation in the study sample.

Table 1: Gender-wise analysis.

Gender	Frequency (N)	Percentage (%)
Male	21	42
Female	29	58

Acrophobia-related symptoms were observed among both male and female amateur trekkers. Age-wise distribution revealed that participants were categorized into five groups: 18–20 years, 21–30 years, 31–40 years, 41–50 years, and 51–60 years. The majority belonged to the 21–30 years age group (21 participants, 42%), followed by the 31–40 years and 41–50 years groups (8 participants each, 16%), the 51–60 years group (7 participants, 14%), and the 18–20 years group (6 participants, 12%). This distribution suggests that the prevalence data on acrophobia-induced symptoms in the present study is primarily reflective of young and middle-aged amateur trekkers, which should be considered while interpreting age-related trends in symptom severity.

Table 2: Age-wise distribution.

Age group (years)	Frequency (N)	Percentage (%)
18–20	6	12
21–30	21	42
31–40	8	16
41–50	8	16
51–60	7	14

Table 3: Prevalence of acrophobia induced symptoms.

Severity of acrophobia induced symptoms	Prevalence	Percentage (%)
No or very mild acrophobia symptoms	0	0
Mild acrophobia symptoms	6	12
Moderate acrophobia symptoms	37	74
Severe acrophobia symptoms	7	14

The Figure 1 shows prevalence and severity of acrophobia-induced symptoms based on the acrotrek Survey Questionnaire scores. None of the participants fell into the no or very mild category.

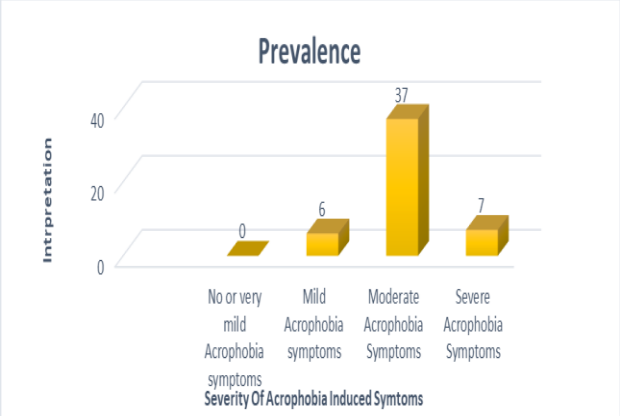

Figure 1: Prevalence of acrophobia induced symptoms.

Mild symptoms were observed in 6 participants (12%), while the majority, 37 participants (74%), exhibited moderate symptoms. Severe symptoms were reported by 7 participants (14%). These findings indicate that moderate acrophobia-induced symptoms were highly prevalent among amateur trekkers.

DISCUSSION

The present study was conducted to assess the prevalence and severity of acrophobia-induced symptoms among amateur trekkers using the self-developed and validated AcroTrek questionnaire. Trekking activities often involve exposure to heights, narrow trails, uneven surfaces, and visual depth cues, which can act as strong triggers for fear responses. The findings of this study provide valuable insight into how frequently amateur trekkers experience acrophobia-related symptoms and the extent to which these symptoms affect their physical, psychological, and functional performance during trekking.

A key finding of the present study is that all participants reported some degree of acrophobia-induced symptoms, with none falling into the category of no or very mild symptoms. This indicates that height exposure during trekking commonly evokes fear responses even among individuals without a diagnosed anxiety disorder. The severity-wise distribution showed that the majority of participants experienced moderate acrophobia-induced symptoms, while smaller proportions exhibited mild and severe symptoms. The absence of participants in the no-symptom category suggests that trekking environments inherently present psychological challenges related to height exposure.

The predominance of moderate symptoms among amateur trekkers suggests that while many individuals are able to continue trekking, they do so with noticeable discomfort, anxiety, or physiological stress. Responses to the AcroTrek questionnaire revealed frequent experiences of dizziness, fear of falling, palpitations, anticipatory anxiety, and reduced confidence during height exposure. These symptoms may adversely affect balance, concentration, and judgment, potentially increasing the risk of unsafe movements or avoidance of certain trekking routes. The identification of severe symptoms in a subset of participants highlights that acrophobia can significantly interfere with trekking participation and may pose serious safety concerns if not recognized and managed appropriately.

These findings support the concept that fear of heights exists along a continuum of severity, rather than as a purely clinical condition. Previous research by Grill et al demonstrated that a substantial proportion of the general population experiences visual height intolerance, with only a subset meeting criteria for severe acrophobia.[3] Similarly, Huppert et al described fear of heights as ranging from mild discomfort to disabling fear.[3] The predominance of moderate symptoms observed in the present study aligns with this spectrum model and suggests that amateur trekkers often fall within the middle range due to intermittent exposure to heights without structured training or desensitization.

Gender-wise analysis revealed that a higher number of female participants reported acrophobia-induced symptoms compared to males. However, in accordance with the Sex and Gender Equity in Research (SAGER) guidelines, this finding was interpreted cautiously due to the higher representation of female participants in the study sample.[15] The increased reporting among females

may be influenced by differences in symptom perception, emotional awareness, or willingness to report fear-related experiences rather than a true gender-based difference in prevalence. Importantly, acrophobia-related symptoms were observed across both male and female participants, indicating that fear of heights affects amateur trekkers irrespective of gender. Adherence to SAGER guidelines ensured that gender-related findings were reported responsibly without overgeneralization.

Age-wise distribution showed that the majority of participants belonged to the 21–30 years' age group, followed by participants aged 31–40 and 41–50 years. This pattern likely reflects higher participation of young adults in trekking activities rather than increased vulnerability to acrophobia in this age group. Nevertheless, acrophobia-induced symptoms were present across all age groups included in the study, suggesting that fear of heights is not restricted to a specific age range. Variations in experience, physical conditioning, exposure frequency, and coping mechanisms may contribute to differences in symptom severity among different age groups.

The AcroTrek questionnaire allowed for a multi-domain assessment of acrophobia-induced symptoms, including general height-related discomfort, physiological reactions, psychological and emotional responses, and the impact of fear on trekking experience. Physiological symptoms such as dizziness, increased heart rate, breathlessness, and unsteadiness were commonly reported, indicating activation of stress-related bodily responses during height exposure. Psychological symptoms, including fear, anxiety, anticipation of danger, and reduced confidence, further emphasize the emotional burden experienced by amateur trekkers. Functional impacts such as avoidance of certain paths, hesitation during climbs, and reduced enjoyment highlight the real-world implications of acrophobia during trekking activities.

Although objective physiological measurements such as heart rate or blood pressure were not included in the present study, the consistent reporting of physiological symptoms suggests meaningful autonomic involvement. Shaffer et al reported that fear and anxiety are associated with changes in cardiovascular regulation, supporting the relevance of self-reported symptoms observed in this study.[14] Additionally, prior experimental and virtual reality-based studies Donker et al, Faizah et al, Varsova et al have demonstrated that exposure to height stimuli elicits both subjective anxiety and objective physiological responses, reinforcing the credibility of the findings.[4,9,10]

Research using simulated height exposure environments Apicella et al, Russo et al has further shown that height cues can provoke strong emotional and physiological reactions even in controlled settings.[6,13] These findings support the interpretation that the symptoms reported by participants in the present study represent genuine fear responses rather than exaggerated perceptions. The consistency between the present findings and existing literature strengthens the relevance of acrophobia-induced symptoms in amateur trekking contexts.

Overall, the findings of the present study emphasize that acrophobia-induced symptoms are common and functionally significant among amateur trekkers. Fear of heights influences not only emotional well-being but also physical performance, confidence, and safety during trekking activities. The results highlight the importance of early identification of at-risk individuals and the need for incorporating psychological preparedness into trekking training and safety planning.

CONCLUSION

The present study concludes that acrophobia-induced symptoms are prevalent among amateur trekkers and are commonly experienced during height exposure in trekking activities. None of the participants fell into the category of no or very mild acrophobia symptoms. The findings from the self-designed AcroTrek questionnaire indicate that a majority of participants exhibited moderate levels of acrophobia, while smaller proportions demonstrated mild and severe symptoms. These symptoms may adversely influence trekking performance and safety. Although a higher number of female participants reported symptoms, this finding was interpreted cautiously in accordance with SAGER guidelines due to unequal gender distribution. Acrophobia-induced symptoms were observed across all age groups, with greater representation among young adults, likely reflecting higher participation rather than age-specific vulnerability.

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