



IDENTIFYING RISK FACTORS IN NATURE WALKS: A QUALITATIVE STUDY BASED ON THE VIEWS OF OUTDOOR SPORTS COURSE STUDENTSⁱ

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Abstract:

The aim of this study was to identify the risk factors arising during nature walks, based on the experiences and views of students participating in practical walks organized as part of the Outdoor Sports course. The research was conducted using a qualitative research approach. The study group comprised 14 students enrolled in the Recreation Department of the Faculty of Sports Sciences at Istanbul Topkapı University during the autumn term of the 2022–2023 academic year, who were attending the 'Theory of Outdoor Sports' course (code MOD301). As part of the study, the students regularly participated in nature walks held in various regions over an eight-week period. Following the completion of the eight-week practical programme, the students' views on the environmental and natural risks, individual and physical risks, risks related to equipment, planning and organization, as well as risks concerning orientation, navigation and safety that they experienced and observed during the walks, and their views on the prevention and management of these risks, were examined. Data were collected using a semi-structured interview form developed by the researchers. The interview form consisted of five open-ended questions designed to enable students to express their views on risk factors based on their eight-week nature walk experience. The data obtained were analyzed using content analysis; they were evaluated according to codes and themes and supported by direct quotations. The findings revealed that the main risks during nature walks included slippery and muddy ground, rugged terrain,

ⁱ DOĞA YÜRÜYÜŞLERİNDE RISK FAKTÖRLERİNİN BELİRLENMESİ: DOĞA SPORLARI DERSİ ÖĞRENCİLERİNİN GÖRÜŞLERİNE DAYALI NİTEL BİR ARAŞTIRMA

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physical fatigue, lack of fitness, the use of unsuitable equipment and difficulties in following the route.

Keywords: outdoor sports, nature walks, risk factors, university students, recreation

Özet:

Bu araştırmada, doğa yürüyüşlerinde ortaya çıkan risk faktörlerinin, Doğa Sporları dersi kapsamında gerçekleştirilen uygulamalı yürüyüşlere katılan öğrencilerin deneyim ve görüşleri doğrultusunda belirlenmesi amaçlanmıştır. Araştırma, nitel araştırma yaklaşımı çerçevesinde gerçekleştirilmiştir. Araştırmanın çalışma grubunu, 2022-2023 eğitim-öğretim yılı güz döneminde İstanbul Topkapı Üniversitesi Spor Bilimleri Fakültesi Rekreasyon Bölümünde öğrenim gören ve MOD301 kodlu Doğa Sporları Teorisi dersine devam eden 14 öğrenci oluşturmaktadır. Araştırma kapsamında öğrenciler, sekiz hafta boyunca farklı bölgelerde gerçekleştirilen doğa yürüyüşlerine düzenli olarak katılmıştır. Sekiz haftalık uygulama sürecinin tamamlanmasının ardından öğrencilerin yürüyüşler sırasında deneyimledikleri ve gözlemledikleri çevresel ve doğal riskler, bireysel ve fiziksel riskler, ekipman, planlama ve organizasyona ilişkin riskler ile yön bulma, navigasyon ve güvenliğe ilişkin riskler ve bu risklerin önlenmesi ve yönetilmesine yönelik görüşleri incelenmiştir. Veriler, araştırmacılar tarafından geliştirilen yarı yapılandırılmış görüşme formu aracılığıyla toplanmıştır. Görüşme formu, öğrencilerin sekiz haftalık doğa yürüyüşü deneyimlerine dayalı olarak risk faktörlerine ilişkin görüşlerini ifade etmelerine olanak sağlayacak şekilde beş açık uçlu sorudan oluşturulmuştur. Elde edilen veriler içerik analizi yöntemiyle çözümlenmiş; kodlar ve temalar doğrultusunda değerlendirilerek doğrudan alıntılarla desteklenmiştir. Bulgular, doğa yürüyüşlerinde başlıca riskler arasında kaygan ve çamurlu zemin, engebeli arazi, fiziksel yorgunluk, kondisyon yetersizliği, uygun olmayan ekipman kullanımı ve rota takibinde yaşanan güçlüklerin öne çıktığını göstermiştir.

Anahtar kelimeler: doğa sporları, doğa yürüyüşleri, risk faktörleri, üniversite öğrencileri, rekreasyon

1. Introduction

Whilst sport is an important area of activity that contributes to individuals' physical and social development, the growing interest in the use of the natural environment for sporting purposes today is also facilitating the development of various nature-based sports and recreational activities. According to Altın and Oruç (2008), outdoor sports are defined as sporting activities carried out in natural environments where human intervention is limited. These activities enable individuals to interact directly with the natural environment, gain diverse experiences and experience a sense of adventure, whilst also contributing to the meaningful utilization of leisure time from both a physical and social perspective. A significant proportion of outdoor sports take place within the

natural environment and offer participants experiences that combine physical exertion, uncertainty and elements of risk (Üstün *et al.*, 2013).

The characteristics and profiles of individuals participating in outdoor sports may vary depending on the level of risk involved in the activity (Dubrin, 1995). In particular, it is noted that individuals participating in outdoor sports involving a high level of risk and excitement, such as mountaineering and parachuting, exhibit a higher level of thrill-seeking compared to participants in other outdoor sports (Jack & Ronan, 1998). Thrill-seeking is associated with individuals engaging in behaviors that involve a certain level of social, physical and economic risk, driven by a desire to experience unusual, variable and intense experiences (Zuckerman, 1994). In this context, it is expected that individuals with a high level of thrill-seeking will show greater interest in outdoor sports that involve elements of uncertainty and risk. Individuals' levels of excitement and arousal may vary depending on the nature of the outdoor sport undertaken and the level of risk it entails. Indeed, research indicates that individuals with a high level of thrill-seeking show greater interest in sports involving danger and risk (Goma-i-Freixanet *et al.*, 2012). However, a lack of necessary training and skills among participants in outdoor sports, or a mismatch between the activity and an individual's capabilities, can lead to risks that may result in serious injuries and fatal accidents (Graydon & Hanson, 2010). Whilst outdoor sports contribute to individuals gaining various physical and psychological benefits, the characteristics of the natural environments in which the activities take place and the nature of the activities themselves can also cause participants to face different challenges and be exposed to the risk of injury (Bravo *et al.*, 2016). For this reason, it is important for individuals participating in outdoor sports to act in accordance with safety regulations, to possess the necessary knowledge regarding the characteristics and use of the equipment they employ, and to choose activities appropriate to their own level of experience and competence. Indeed, health issues that may arise during outdoor sports include symptoms of altitude-related illness, frostbite, sunburn, dehydration due to insufficient fluid intake, and infections resulting from poor personal hygiene (Prószyńska-Bordas & Baranowska, 2021).

Hiking is defined as an outdoor sport that can be undertaken as a day trip in natural areas or organized as activities lasting several days. Hiking is regarded as one of the most widely preferred activities amongst those carried out within the scope of outdoor sports (Hawke & Jensen, 2020). In addition to day walks, referred to as 'hiking', 'trekking' encompasses walks that are of longer duration and require greater physical endurance. Nature walks may be undertaken solely for the purpose of walking, or they may serve as a means of facilitating other outdoor sports (Kaplan & Ardahan, 2013). Trekking, on the other hand, is described as long-duration, physically demanding walks undertaken in natural environments (Olafsdottir, 2013). This activity refers to individuals walking along designated trails or in open natural areas without adhering to any specific trail (Huddart & Stott, 2019).

One of the key characteristics of nature walks is that they offer individuals the opportunity to engage directly with the natural environment and feel close to nature.

Indeed, it is noted that the desire to interact with nature is a significant motivating factor in individuals' participation in nature walks. In this regard, it is stated that the interaction with the natural environment during a walk also has a significant effect on participants' emotional states (Niedermeier *et al.*, 2019).

The aim of this study is to identify the risk factors that may arise during nature walks, based on the experiences and views of students participating in practical walks organized as part of the 'Outdoor Sports' course. It is anticipated that the study will contribute to a better understanding of the risks encountered during nature walks and to the development of safe walking practices.

2. Method

2.1 Research Design

This study was designed based on the phenomenological research design, one of the qualitative research methods. Phenomenological research is conducted to determine how people perceive events, what they feel about them, how they recall them – in other words, how they experience them (Patton, 2014). The aim of such studies is to seek to understand participants' perspectives, values and lived experiences within their own contexts, rather than making quantitative generalizations. The researcher seeks to reveal participants' subjective perceptions of reality. Data are typically collected through interviews, observations and document analysis (Creswell, 2013). The aim of this study is to identify the risk factors arising during nature walks, based on the experiences and views of students participating in practical walks organized as part of the Outdoor Sports course. As part of the research, the literature on risk factors in nature walks was reviewed, and semi-structured interview questions were developed in line with the study's objective.

To ascertain the students' views and perceptions of risk regarding their eight-week nature walk experience, the following questions were posed to them:

- 1) When you evaluate your eight-week nature walk experience as part of the Outdoor Sports course in general, what environmental and natural risks did you encounter or observe during the walks? Please explain these risks by giving examples from the walks you undertook.
- 2) During the nature walks you undertook as part of the Outdoor Sports course, were there any situations where you felt that your own physical condition, experience, level of knowledge and skills, or behavior contributed to the emergence of risks? If so, please describe the experiences you had.
- 3) How do you assess the equipment and materials you used, the pre-walk preparation and planning, and the group organization during the nature walks you undertook as part of the Outdoor Sports course? Were there any situations where you felt these factors posed a risk?
- 4) During the nature walk you undertook as part of the Outdoor Sports course, did you experience or observe any situations that could pose a risk in terms of

orientation, route tracking and navigation? If so, please describe these situations and the factors that led to the risks arising.

- 5) Based on your eight-week nature walk experience, what do you think needs to be done to prevent and manage the risks encountered during hikes? Please outline your recommendations in terms of students, instructors, equipment, planning and group management.

2.2 Study Group

The study group for this research consists of 14 students enrolled in the Department of Recreation at the Faculty of Sports Sciences, Istanbul Topkapı University, during the autumn term of the 2022–2023 academic year, who were taking the ‘Theory of Outdoor Sports’ course (code MOD301). The study group was selected from among those students who regularly attended the ‘Theory of Outdoor Sports’ course during the aforementioned academic term and who regularly participated in the nature walks organized in different regions over the course of eight weeks as part of the course. The convenience sampling method, one of the purposive sampling methods, was used to determine the study group. The reason for choosing this sampling method was that, at the time the research was conducted, the researchers were teaching the relevant course and were able to directly reach the students participating in the nature walks examined within the scope of the research. The participants’ ages ranged from 20 to 25; eight were male, and six were female. All participants were third-year students. Furthermore, all participants regularly took part in nature walks organized in different regions over an eight-week period as part of the course and gained experience from these nature walks during this time.

2.3 Data Collection

A semi-structured interview form was used to collect data for the study. The questions included in the interview form were prepared by the researchers following a review of the literature on risk factors that may be encountered during nature walks and on risk management. The views of subject matter experts were sought to assess the scope and comprehensibility of the interview form, and the necessary adjustments were made in line with the feedback received. Prior to data collection, a pilot study was carried out with three students to assess the clarity of the interview questions and the smooth running of the interview process.

The interviews were conducted face-to-face following the completion of the nature walks carried out as part of the eight-week Outdoor Sports course. Participants were asked questions regarding the risks they had encountered or observed during their eight-week nature walk experiences, as well as the prevention and management of these risks. Each interview lasted approximately 30 minutes, and audio recordings were made with the participants’ consent. All interviews were subsequently transcribed in writing.

2.4 Data Analysis

The data obtained in the study were analyzed using content analysis. During the data analysis process, the interview recordings were first transcribed, and the participants' responses were examined in detail. Five main themes were identified in line with the aim of the study and the interview questions. These themes were: environmental and natural risks; individual and physical risks; equipment, planning and organization; orientation, navigation and safety; and risk prevention and risk management. The codes developed based on these themes were reviewed in consultation with a subject matter expert and prepared for analysis.

During the analysis process, the participants' responses were carefully examined and matched with the relevant themes and codes. The participants' statements were analyzed to identify similarities and differences between the codes, and the frequencies of the codes obtained were calculated. In the final stage, the codes and frequencies were evaluated together to derive and interpret the findings. The data analysis was carried out using the MAXQDA qualitative data analysis programme.

To ensure the reliability of the research, the codes and themes developed were independently assessed by the researcher and a subject matter expert, and the degree of agreement between them was calculated using Miles and Huberman's (1994) reliability formula. The calculation revealed a consensus rate of 92 per cent. In the 'Findings' section, where direct quotations from participants' views are presented, codes such as S1, S2, S3, ... S14 have been used to ensure the anonymity of the participants.

3. Findings

Table 1: Some Descriptive Information Regarding the Students Interviewed

Code	Age	Gender	Experience
S1	21	Male	Yes
S2	22	Female	None
S3	20	Male	None
S4	23	Male	Yes
S5	20	Female	None
S6	24	Male	None
S7	21	Female	None
S8	25	Male	Yes
S9	22	Male	None
S10	20	Female	None
S11	23	Male	None
S12	20	Female	Yes
S13	24	Male	None
S14	21	Female	None

Table 1 shows that 14 participants were included in the study. The participants' ages range from 20 to 25; 8 are male, and 6 are female. Four of the participants had previous experience of nature walks, whilst 10 had no prior experience.

The participants were first asked the following question: *“When you evaluate your eight-week nature walk experience, undertaken as part of the ‘Outdoor Sports’ course, in general terms, what environmental and natural risks did you encounter or observe during the walks? Please explain these risks by providing examples from the walks you undertook.”* The findings obtained from the participants’ responses are presented in Table 2.

Table 2: Findings on Environmental and Natural Risks During Nature Walks

Theme	Coded Responses	Frequency (f)
Environmental and Natural Risks	Risk of falling and slipping due to slippery and muddy ground (S ₁ , S ₂ , S ₃ , S ₅ , S ₆ , S ₇ , S ₈ , S ₉ , S ₁₀ , S ₁₁ , S ₁₂ , S ₁₃)	12
	Rough and uneven road (S ₁ , S ₂ , S ₃ , S ₄ , S ₇ , S ₉ , S ₁₁ , S ₁₂ , S ₁₃ , S ₁₄)	10
	Weather conditions (S ₁ , S ₂ , S ₄ , S ₆ , S ₈ , S ₁₀ , S ₁₂ , S ₁₄)	8
	Steep slopes (S ₃ , S ₅ , S ₆ , S ₉ , S ₁₂)	5
	Vegetation and thorny areas (S ₂ , S ₅ , S ₈ , S ₁₁)	4
	Water crossings (S ₄ , S ₇ , S ₁₃)	3
	Wildlife (S ₆ , S ₁₀)	2

An examination of Table 2 reveals that the primary environmental and natural risks encountered by participants during nature walks were the risk of falling and slipping due to slippery and muddy ground (n=12). A significant proportion of participants noted that slippery, muddy and uneven ground in particular had a negative impact on walking safety and increased the risk of falling due to loss of balance. One participant, S₁₁, explained this situation as follows: *“In some sections, the ground was very slippery and we struggled to maintain our balance, particularly on descents; therefore, I thought there was a risk of falling.”* Another important factor that participants identified as a risk during nature walks was uneven and rough terrain (n=10). It was observed that areas along the walking routes containing stones, uneven surfaces and various natural obstacles made movement difficult during the walk and could pose a safety risk. Participant S₂ described this situation as follows: *“The ground being very stony and uneven during the walk made walking difficult, and in some places, there was a high risk of tripping.”*

Another risk frequently mentioned by participants (n=8) was weather conditions. It was noted that changes in weather conditions, particularly when accompanied by rain, could cause the ground to become slippery and make walking conditions more difficult. On this subject, S₆ stated: *“The sudden change in the weather and the onset of rain made the ground slippery, and we had to be more careful whilst walking.”* It is also evident that participants mentioned steep slopes (n=5), vegetation and thorny areas (n=4), water crossings (n=3) and wild animals (n=2) as factors that can pose various risks during nature walks.

In summary, it appears that the environmental and natural risks encountered by participants during nature walks stem primarily from ground and terrain conditions, as well as weather conditions. In particular, the risk of falling and slipping due to slippery and muddy ground, along with uneven and obstructed paths, weather conditions and

rainfall, stand out as the risk factors most frequently highlighted by participants. Furthermore, steep slopes, vegetation and thorny areas, water crossings and wild animals are also among the other environmental and natural risks that must be taken into account during nature walks. How participants' prior experience of nature walks influences their views on these risks must be assessed in conjunction with the findings from other themes. Secondly, participants were asked: "During the walks you undertook as part of the "Outdoor Sports" course, were there any situations where you thought your own physical condition, experience, level of knowledge and skills, or behavior contributed to the occurrence of risks? If so, please describe your experiences." The findings derived from the participants' responses are presented in Table 3.

Table 3: Findings Regarding Individual and Physical Risks in Nature Walks

Theme	Coded Responses	Frequency
Individual and Physical Risks	Physical fatigue (S1, S2, S3, S5, S7, S8, S10, S12, S14)	9
	Lack of fitness (S1, S3, S5, S6, S7, S9, S11, S13)	8
	Inattention and distraction (S2, S3, S5, S6, S8, S10, S11)	7
	Lack of experience and knowledge (S5, S6, S7, S8, S9, S10, S13)	7
	Walking pace (S1, S4, S5, S8, S11, S12)	6
	Insufficient rest (S1, S4, S7, S10)	4

Upon examination of Table 3, it can be seen that physical fatigue (n=9) ranks first among the individual and physical risks encountered by participants during nature walks. A significant proportion of participants stated that they experienced fatigue during the walks due to their length and physical demands, and that this could negatively affect their attention and mobility. Participant S1 described this situation as follows: "As the walk went on, I felt physically tired and, particularly towards the end, I had to walk more carefully." Another risk frequently mentioned by participants was a lack of fitness (n=8). On this point, S6 remarked, "As my fitness was not sufficient, I fell behind the group on some trails and struggled to keep up with the pace."

It was observed that participants (n=7) highlighted inattention and distraction as another individual factor that could lead to risks during nature walks. Participant S10 remarked, "I realized that sometimes, whilst looking around, I wasn't paying enough attention to the ground I was walking on; this could pose a risk, particularly on stony terrain." Similarly, it was observed that the participants (n=7) indicated that a lack of experience and knowledge also played a role in the formation of risks.

S13 explained this situation by saying, "As I hadn't done many nature walks before, I didn't know how to navigate certain areas and had to ask experienced friends for help."

It was also noted that participants highlighted individual and physical risk factors such as walking pace (n=6) and insufficient rest (n=4). In summary, it can be said that the risks participants faced during nature walks, from an individual and physical perspective, stemmed predominantly from physical fatigue, lack of fitness, inattention and a lack of experience and knowledge. Furthermore, it is evident that adjusting the

walking pace appropriately and ensuring sufficient rest are also important for reducing these risks.

Thirdly, participants were asked the following question: *“How do you assess the equipment and materials you used on the nature walks undertaken as part of the ‘Outdoor Sports’ course, as well as the pre-walk preparation, planning and group organization? Were there any situations where you felt these factors posed a risk? Please explain.”* The findings derived from the participants’ responses are presented in Table 4.

Table 4: Findings Regarding Equipment, Planning and Organisation in Nature Walks

Theme	Coded Responses	Frequency
Equipment, Planning and Organization	Use of unsuitable footwear (S2, S4, S5, S6, S8, S10, S11, S13)	8
	Inadequate equipment preparation (S1, S3, S5, S6, S7, S9, S10)	7
	Lack of pre-walk preparation (S2, S4, S6, S7, S8, S11)	6
	Failure to dress appropriately for the weather (S3, S5, S6, S8, S10, S14)	6
	Inadequate planning of water and nutrition (S1, S5, S7, S9, S12)	5
	Failure to provide sufficient information about the route in advance (S4, S6, S8, S10, S13)	5
	Problems with group organization (S2, S5, S7, S11)	4

Upon examination of Table 4, it is evident that the use of unsuitable footwear (n=8) ranks as the primary risk encountered by participants in terms of equipment, planning and organisation during nature walks. A significant proportion of participants stated that footwear unsuitable for the walking conditions posed a safety risk, particularly on uneven and slippery terrain. Participant S4 described this situation as follows: *“When I wore footwear unsuitable for walking, I found it difficult to walk on stony and slippery ground, so I was worried about slipping.”*

Another important point raised by the participants (n=7) was the inadequacy of equipment preparation. It was noted that if the necessary equipment was missing or not properly prepared before the walk, this could lead to various problems during the walk. Participant S7 expressed the following view on this matter: *“When we did not check exactly what equipment we needed before setting off on the walk, certain shortcomings could arise.”* In addition, a lack of pre-walk preparation (n=6) and failing to dress appropriately for the weather conditions (n=6) were also among the risk factors frequently highlighted by the participants. It was also noted that participants highlighted factors such as inadequate planning of water and nutrition, a lack of sufficient prior information about the route (n=5) and organisational issues within the group (n=4). One participant, S6, stated: *“If we had been given more information in advance about the route of the walk, we would have been better prepared and would have known in advance the difficulties we might encounter.”*

In summary, the participants’ assessments regarding equipment, planning and organisation highlighted, in particular, the use of unsuitable footwear, inadequate preparation of equipment, a lack of preparation prior to the walk and failure to dress appropriately for the weather conditions. Furthermore, it is understood that water and nutrition planning, the provision of sufficient prior information about the route and

group organization are also important for reducing risks during nature walks. In light of these findings, it can be said that, in order to minimise risks during nature walks, it is important to prepare the necessary equipment before the walk, dress appropriately for the weather and terrain, ensure participants are informed about the route in advance, and organise the group in a planned manner.

Fourthly, participants were asked: *“During the nature walks you undertook as part of the “Outdoor Sports” course, did you experience or observe any situations that could pose a risk in terms of orientation, route tracking and navigation? If so, please describe these situations and the factors that led to the emergence of these risks.”* The findings obtained from the participants’ responses are presented in Table 5.

Table 5: Findings Regarding Orientation, Navigation and Safety in Nature Walks

Theme	Coded Responses	Frequency
Orientation, Navigation and Safety	Experiencing difficulty following the route (S2, S5, S6, S7, S8, S10, S11, S13)	8
	Anxiety about getting lost (S5, S6, S7, S8, S9, S10, S13)	7
	Inadequacy of signs and markings (S1, S4, S6, S7, S11, S12)	6
	Risk of straying off the route (S2, S5, S7, S9, S10)	5
	Risk of becoming separated from group members (S3, S6, S8, S11, S14)	5
	Reduced visibility (S1, S6, S9)	3

An examination of Table 5 reveals that the primary risk faced by participants during nature walks in terms of orientation, navigation and safety was difficulty in following the route (n=8). A significant proportion of participants stated that they found it difficult to follow the route and determine their direction, particularly on routes that were not clearly marked or in sections where route markings were inadequate. Participant S5 described this situation as follows: *“In some sections, I found it difficult to work out where the route continued and had to follow the people at the front of the group.”* Another important point raised by participants (n=7) was the fear of losing their way. It was noted that anxiety about losing one’s way could arise, particularly in sections where signposting was inadequate, and the route was unclear. Participant S9 expressed the view: *“I was worried about going the wrong way in places where the route markings were insufficient, so I took particular care not to stray from the group.”* Furthermore, the inadequacy of signs and markings (n=6) was also among the risk factors frequently highlighted by participants. It was also observed that participants highlighted factors such as the risk of straying off the route (n=5), the risk of becoming separated from group members (n=5) and reduced visibility (n=3). Participant S6 stated: *“It became more difficult to find my way in places where visibility was reduced or where signs in the vicinity were not visible.”*

In summary, the participants’ views on orientation, navigation and safety primarily highlighted difficulties in following the route, anxiety about losing one’s way, and the inadequacy of signs and markings. Furthermore, straying off the route, becoming separated from group members and reduced visibility were also assessed as risk factors that need to be taken into account in terms of orientation and safety during nature walks. In light of these findings, it can be said that to reduce risks associated with orientation

during nature walks, it is important to provide sufficient information about the route before the walk, ensure route markings are appropriately placed, maintain group cohesion, and take visibility conditions into account.

Fifthly, participants were asked: *'Based on your eight-week nature walk experience, what do you think needs to be done to prevent and manage the risks encountered on nature walks? Please explain your recommendations in terms of students, instructors, equipment, planning and group management.'* The findings derived from the participants' responses are presented in Table 6.

Table 6: Findings Regarding the Prevention and Management of Risks in Nature Walks

Theme	Coded Responses	Frequency
Risk Prevention and Risk Management	Taking participants' physical fitness into account (S1, S2, S3, S4, S5, S7, S9, S11, S13)	9
	Checking the route and weather conditions in advance (S1, S2, S4, S6, S8, S10, S12, S14)	8
	Use of appropriate equipment (S1, S3, S4, S5, S7, S8, S10)	7
	Maintaining group cohesion (S2, S5, S6, S8, S11, S12)	6
	Support for inexperienced participants (S5, S6, S7, S9, S10, S13)	6
	Preparation of a first aid and emergency plan (S1, S3, S6, S9, S12)	5
	Providing participants with advance information (S2, S3, S5, S11)	4

An examination of Table 6 reveals that the top recommendation from participants regarding the prevention and management of risks encountered on nature walks was to take participants' physical fitness into account (n=9). A significant proportion of participants stated that taking participants' physical fitness into account when determining walking routes and planning the walk is important for reducing potential physical strain and associated risks. Participant S3 described this as follows: *"Taking into account the difficulty level of the route and our own physical condition before starting the walk ensures that we are better prepared for any risks we may encounter."* Another important point raised by participants (n=8) was the need to check the route and weather conditions in advance. It was noted that assessing the route characteristics and weather conditions prior to the walk would help ensure participants were prepared for any potential adverse circumstances. Participant S8 described this as follows: *"Being provided with information about the route and weather conditions before the walk ensures we are better prepared and can select the necessary equipment correctly."* In addition, the use of appropriate equipment (n=7) is also considered one of the key factors in preventing risks. It appears that participants believe the use of equipment suitable for the walking conditions and the characteristics of the route to be undertaken is important for ensuring safety. Participant S4 expressed the view that *"Using footwear and equipment suitable for the trail's conditions allows us to move more comfortably and safely during the hike."* It was also observed that participants touched upon the issues of maintaining group cohesion (n=6) and supporting inexperienced participants (n=6). Participant S5, whilst highlighting the importance of supporting inexperienced participants, also drew attention to the

importance of solidarity within the group, stating: *“Supporting students who have not hiked before, particularly in challenging sections, not only ensures their safety but also helps the group to move together.”* The preparation of a first-aid and emergency plan (n=5) was also regarded by participants as a key element in risk management. Participant S1 expressed the view that, *“I believe it is essential to determine in advance what to do in the event of an accident or health problem and to ensure that first-aid supplies are readily available.”* In addition, providing participants with information in advance (n=4) was also among the recommendations for reducing risks. In summary, it is evident that the participants’ views on the prevention and management of risks focused primarily on taking participants’ physical fitness into account, checking the route and weather conditions in advance, and using appropriate equipment. Furthermore, it can be said that maintaining group cohesion, supporting inexperienced participants, preparing first-aid and emergency plans, and briefing participants prior to the hike are also important aspects of risk management in nature walks. In this regard, it is considered that taking participants’ individual characteristics into account, assessing environmental conditions in advance, ensuring the use of appropriate equipment, and making plans for group safety will contribute to the reduction of risks.

4. Discussion

The aim of this study was to identify the risk factors encountered during nature walks; to this end, the views and experiences of students participating in eight-week nature walks organized as part of the Outdoor Sports course were examined. The data obtained in line with the study’s objective were analysed using content analysis; the findings, evaluated under five themes, are discussed in this section in the light of the relevant literature, and explanations regarding the results are provided.

An examination of the findings revealed that the risk factors encountered during nature walks can be grouped under five themes: environmental and natural risks; individual and physical risks; equipment, planning and organisation; orientation, navigation and safety; and risk prevention and risk management. The findings indicate that the occurrence of risks during nature walks cannot be explained solely by environmental conditions; rather, individuals’ physical fitness and experience, the equipment used, pre-walk preparation and planning, group organisation and orientation processes also play a role in the emergence of risks. Conversely, the findings regarding risk prevention suggest that these elements should be addressed not in isolation but in an interrelated manner. Consequently, ensuring safety during nature walks requires the joint planning of the assessment of environmental conditions, consideration of individual capabilities, provision of suitable equipment and preparation, maintenance of group cohesion, and measures to address potential emergencies.

In terms of environmental and natural risks, our research identified the most frequently cited risks as the risk of falling and slipping on slippery and muddy ground (n=12), uneven and stony terrain (n=10) and weather conditions (n=8). These findings are

consistent with the results presented in Keskin's (2020) study, which indicated that environmental factors such as slippery ground, rock, cliffs, rocky terrain, rockfalls, fog and snow can pose risks during nature walks. In both studies, the physical characteristics of the walking route and variable environmental conditions stand out as key factors that may affect participants' safety. Keskin's (2020) assessment that risks may vary depending on seasonal and environmental conditions also aligns with the finding in our study that weather conditions emerged as a significant risk factor. Indeed, the fact that our study highlighted the need to check the route and weather conditions in advance (n=8) demonstrates that environmental risks should not only be identified during the walk but also assessed prior to the event.

In addition to environmental conditions, individual and physical characteristics also emerged as a significant area of risk in our study. Physical fatigue (n=9), lack of fitness (n=8) and lack of experience and knowledge (n=7) were the most frequently highlighted factors under this theme. Apollo's (2017) assessment that, in nature walks, the route must be compatible with participants' technical, physical, biological and psychological capabilities is consistent with these findings. In particular, the high frequency of physical fatigue and lack of fitness suggests that participants' physical capacity must be taken into account when determining the characteristics of a walking route. Furthermore, the identification of a lack of experience and knowledge as a risk factor demonstrates that safe walking behaviour is not limited to physical competence alone; knowledge and experience relating to the activity are also important.

Our findings regarding experience align with the assessments by Mei-Dan and Carmont (2013), who noted that experienced participants in nature and adventure sports are aware of the risks they may face and develop themselves through training and practice to mitigate these risks. Similarly, the findings of Dinç, Sağlı Uzunöz and Güneş (2018), which revealed that individuals participating in an experience programme exhibited changes in their risk perceptions regarding nature sports, support the role of experience in the assessment and management of risks. When considered alongside these results, the observation in our study that inexperienced participants (n=6) required support further demonstrates that experience is a key factor in developing risk awareness and safe behaviour. The assessments by Ardahan and Mert (2013), who noted that outdoor sports provide individuals with the opportunity to learn risk management, make decisions and take responsibility, also support this finding.

These findings relating to individual characteristics and experience can also be linked to Pomfret's (2006) assessment that individuals' personality traits influence their perceptions of adventure and their motivation to participate in mountaineering activities. However, the aim of our study is not to determine individuals' adventure motivations or personality traits. Therefore, Pomfret's (2006) approach offers a complementary perspective on how individuals may perceive nature and adventure activities in different ways, rather than providing a direct explanation for the findings on experience and individual differences in our study.

When assessed in terms of equipment, planning and organisation, the prominent risk factors identified in our study were the use of unsuitable footwear (n=8), inadequate equipment preparation (n=7), a lack of preparation prior to the walk (n=6) and failure to dress appropriately for the weather conditions (n=6). These results are consistent with Keskin's (2020) findings that incomplete or incorrect equipment, unsuitable equipment and the use of incorrect footwear pose risks. Our study also identified that preparation-related factors, such as a lack of sufficient prior information about the route (n=5) and inadequate planning for water and nutrition (n=5), also constitute risks. Conversely, the fact that participants recommended the use of appropriate equipment (n=7), checking the route and weather conditions in advance (n=8) and providing advance information (n=4) to prevent risks demonstrates that preparation and planning are key components of risk management.

Group organisation and group safety were also identified in our study as significant areas of risk and risk management. Whilst shortcomings in group organisation (n=4) were cited as a risk-inducing factor, the maintenance of group cohesion (n=6) emerged as a key element in preventing risks. This finding is consistent with the assessments by Ardahan and Mert (2013), who noted that outdoor sports contribute to the development of group dynamics, the strengthening of social relationships, the sharing of responsibility and the formation of team spirit. Similarly, D'Amato and Krasny (2011) and Ewert and Sibthorp (2014) note that nature and adventure activities carried out in groups support social interaction and interdependence and can contribute to moving more safely as a group. Consequently, the findings of our study demonstrate that safety on nature walks cannot be ensured by individual competence or equipment alone; communication amongst group members, maintaining the group's cohesion and moving together are also important aspects of risk management.

In terms of orientation, navigation and safety, our study highlighted difficulties in following the route (n=8), anxiety about losing one's way (n=7), inadequate signage and markings (n=6), the risk of straying off the route (n=5) and the risk of becoming separated from group members (n=5). These findings indicate that safety on nature walks is not limited to the assessment of the physical environment and individual capabilities; rather, following the walking route and maintaining group movement are also crucial. This theme is directly linked to other findings in our research. In particular, the combined evaluation of the risk of becoming separated from group members and the finding regarding the preservation of group cohesion highlights the importance of coordinated movement as a group, rather than individual movement, in orientation and navigation processes. This is also consistent with the assessments by D'Amato and Krasny (2011) and Ewert and Sibthorp (2014) regarding the relationship between group participation and safe movement.

Apter's (2005) approach, which suggests that the relationship between risk, excitement and safety may vary depending on the circumstances in which individuals find themselves, offers a different theoretical perspective on the findings of our study. However, as our study was conducted using a phenomenological design, the

participants' motivational states or the pleasure they derived from risk were not directly examined. Therefore, it is not appropriate to interpret Apter's (2005) approach as a direct finding of our study. Furthermore, whilst some participants in Keskin's (2020) study interpreted risk and danger within the context of adventure and excitement, the fact that participants in our study addressed risks primarily within the framework of safety and risk management suggests that the perception of risk during nature walks may vary depending on participants' experiences and the context of the activity.

Taken as a whole, the findings of our study reveal that risks in nature walks consist of numerous interrelated factors, such as environmental conditions, individual competence, experience, equipment, planning, group organisation and navigation. When evaluated alongside findings in the literature, there are clear parallels, particularly regarding the role of experience in recognising and mitigating risks, the importance of appropriate equipment and preparation, and the impact of group cohesion on safe movement. Conversely, there are differences between the findings of our study and some previous studies regarding whether risks are perceived as an element of adventure and excitement or as a safety issue to be prevented. It is thought that this discrepancy may stem from the participant groups, activity contexts and the nature of the experiences examined in the respective studies. Consequently, it can be argued that risk management in nature walks should be based on the joint assessment of environmental, individual, equipment, organisational and safety dimensions, rather than focusing on a single risk factor.

5. Recommendations

- 1) It is recommended that nature walks be undertaken under the guidance of expert and qualified instructors, rather than individually.
- 2) It is recommended that a risk assessment be carried out prior to nature walks, covering the route, terrain and weather conditions.
- 3) It is recommended that basic nature walk and risk management training be enhanced, taking into account participants' physical fitness and experience levels.
- 4) It is recommended that participants be provided with practical training in orientation, route tracking and basic navigation skills.
- 5) It is recommended that nature walk experts hold the necessary training and certifications, and that these qualifications are regularly assessed by the relevant federation.
- 6) It is recommended that group cohesion be maintained during hikes, equipment be checked and emergency plans be prepared.
- 7) It is recommended that, whilst outdoor sports are enjoyable and pleasurable activities, the necessary safety and risk management measures be taken, bearing in mind that they are always subject to unforeseeable risks.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

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References

- Altın, N. B., & Oruç, S. (2008). The use of outdoor sports in environmental education during childhood. *Journal of the Faculty of Education, Çukurova University*, 3(35), pp. 10–18.
- Apollo, M. (2017). The True Accessibility of Mountaineering: The Case of the High Himalaya. *Journal of Outdoor Recreation and Tourism*, vol. 17, pp. 29–43. <https://doi.org/10.1016/j.jort.2016.12.001>
- Apter, M., J. (2005). *Personality Dynamics: Key Concepts in Reversal Theory*. Apter International.
- Ardahan, F., & Mert, M. (2013). The validity and reliability of the Motivational Factors Scale and the Benefits Scale of participating in trekking activities for the Turkish population: A study on the validity and reliability of the scale measuring factors motivating individuals to go on nature walks and the scale measuring the benefits gained from participating in these activities. *Journal of Human Sciences*, 10(2), pp. 338–355. Retrieved from <https://www.j-humansciences.com/index.php/IJHS/article/view/2501>

- Bravo, G. C., Parra, D. M., Mendes, L., & de Jesus Pereira, A. M. (2016). First aid drone for outdoor sports activities. In the 2016 1st International Conference on Technology and Innovation in Sports, Health and Wellbeing, pp. 1–5. <https://doi.org/10.1109/TISHW.2016.7847781>
- Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: SAGE Publications. Retrieved from https://books.google.ro/books/about/Qualitative_Inquiry_and_Research_Design.html?id=Ykruxor10cYC&redir_esc=y
- D’Amato, L.G. & Krasny, M.E. (2011). Outdoor Adventure Education: Applying Transformative Learning Theory to Understanding Instrumental Learning and Personal Growth in Environmental Education. *The Journal of Environmental Education*, pp. 237–254. <https://doi.org/10.1080/00958964.2011.581313>
- Dinç, S. C., & Tez, Ö. Y. (2021). An investigation of the variables influencing differences in risk-taking behaviour among adventure recreation participants. *International Journal of Sport Exercise and Training Sciences-IJSETS*, 7(4), pp. 203–219.
- Dinç, S. C., Saçlı Uzunöz, F., & Güneş, B. (2018). An investigation of changes in risk-taking and critical thinking tendencies associated with nature adventure education. *Journal of the Institute of Social Sciences, Ahi Evran University*, 4(2), pp. 166–182.
- Dubrin, A.J. (1995). *Leadership: Research findings, Practice and Skills* (pp. 56–95), Houghton. Retrieved from https://books.google.ro/books/about/Leadership.html?id=PfJ3aC3FyJEC&redir_esc=y
- Ewert, A.W. & Sibthorp, J. (2014). *Outdoor Adventure Education: Foundation, Theory, and Research*; Human Kinetics, Champaign, IL. <https://doi.org/10.5040/9781492595663>
- Goma i Freixanet, M., Martha, C., Muro, A. (2012). Does the sensation-seeking trait differ amongst participants engaged in sports with different levels of physical risk? *Anales De Psicologia*, 28(1), 223–232. Retrieved from https://www.researchgate.net/publication/258903072_Does_the_Sensation-Seeking_trait_differ_among_participants_engaged_in_sports_with_different_levels_of_physical_risk
- Graydon, D., Hanson, K. (2010). *The Freedom of the Peaks* (Trans. T. Findık) (pp. 14–45). Istanbul: Homer Bookshop and Publishing Ltd.
- Hawke, A. L. and Jensen, R. L. (2020). Are trekking poles helping or hindering your hiking experience? A review. *Wilderness & Environmental Medicine*, 31(4), 482–488. <https://doi.org/10.1016/j.wem.2020.06.009>
- Huddart, D. & Stott, T. (2019). *Outdoor recreation: Environmental impacts and management*. e-Book: Palgrave Macmillan. <https://doi.org/10.1007/978-3-319-97758-4>
- Jack S.J., & Ronan, K.R. (1998). Sensation seeking among high- and low-risk sports participants. *Personality and Individual Differences*, 25(6), pp. 1063–1083. [https://doi.org/10.1016/S0191-8869\(98\)00081-6](https://doi.org/10.1016/S0191-8869(98)00081-6)

- Kaplan, A., & Ardahan, F. (2013). Profiles of individuals who participate in outdoor sports, their reasons for doing so and the benefits they derive: the case of Antalya. *Black Sea Journal of Social Sciences*, 5(8), pp. 93–114.
- Keskin, M. T. (2020). *An investigation into the risk perceptions and experiences of participants walking on different routes based on a smart route application* [PhD thesis, Ankara University].
- Mei-Dan, O. & Carmont, M. R. (2013). *Adventure and Extreme Sports Injuries: Epidemiology, Treatment, Rehabilitation and Prevention*. Springer-Verlag: London. Retrieved from <https://link.springer.com/book/10.1007/978-1-4471-4363-5>
- Miles, M. & Huberman, A. (1994). *Qualitative data analysis*. New Delhi: SAGE Publications.
- Niedermeier, M., Grafetstätter, C., Kopp, M., Huber, D., Mayr, M., Pichler, C. & Hartl, A. (2019). The role of anthropogenic elements in the environment for affective states and cortisol concentration in mountain hiking—a crossover trial. *International Journal of Environmental Research and Public Health*, 16(2), p. 290. <https://doi.org/10.3390/ijerph16020290>
- Olafsdottir, G. (2013). "... sometimes you've just got to get away": On trekking holidays and their therapeutic effect. *Tourist Studies*, 13(2), pp. 209–231. <https://doi.org/10.1177/1468797613490379>
- Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. London: Sage Publications. Retrieved from https://books.google.ro/books?id=-CM9BQAAQBAJ&printsec=frontcover&source=gbs_atb&redir_esc=y#v=onepage&q&f=false
- Pomfret, G. (2006). Mountaineering Adventure Tourists: A Conceptual Framework for Research. *Tourism Management*, 27(1), pp. 113–123. <https://doi.org/10.1016/j.tourman.2004.08.003>
- Prószyńska-Bordas, H., & Baranowska, K. (2021). Selected health issues related to high-altitude trekking. *Studia Periegetica*, 33, pp. 41–65. <https://doi.org/10.5604/01.3001.0014.8995>
- Ustun, U.D., Gumusgul, O., Isik, U., Demirel, D.H., & Demirel, M. (2013). A Comparison of environmental values: The effect of outdoor recreation. *International Journal of Sport Studies*, 3(10), pp. 1023–1029. Retrieved from https://www.researchgate.net/publication/364607763_A_Comparison_of_Environmental_Values_The_Effect_of_Outdoor_Recreation
- Zuckerman, M. (1994). *Behavioural Expressions and Biosocial Bases of Sensation Seeking*. New York: Cambridge University Press. pp. 25–31. Retrieved from <https://psycnet.apa.org/record/1994-97961-000>