Gender differences in unsafety perception and precautionary behaviour among adolescents: Case study of a small peripheral town in Slovakia

Katarína RIŠOVÁ [a] * (ID) , Veronika PÓCZOŠOVÁ [b]

Abstract

The aim of this study is to question gender stereotypes regarding differences in the unsafety perceptions and perceived threats of adolescents, with a special emphasis on their precautionary behaviour. This research was based on emotional mapping in the very small peripheral town of Fiľakovo (Slovakia). Altogether, 151 adolescents in the age of 10–16 years were asked to mark places where did not feel safe, along with perceived threats, as well as information on precautionary strategies they use there. Regardless of the time of day, neither girls nor boys felt significantly less safe, with residential location and age playing a more important role in unsafety perception differences than gender. Girls perceived significantly more people-related threats than boys (regardless of daylight), while boys were aware of significantly more risk in buildings, streets, and places with negative associations (after dark). Avoidance, dependence, and self-reliant precautionary behaviours were identified. Regardless of daylight, girls chose dependence (e.g. calling someone, having a companion) among other types of precautionary behaviour significantly more often than boys. Avoidance and self-reliance were gender neutral. The perception of girls as perceiving more risks and being more avoidant is showed to be a form of gender stereotype and should not be considered a generally valid paradigm.

1. Introduction

Research to date has shown that gender is one of the most important unsafety perception predictors (Mak & Jim, 2018; Soto et al., 2022). In general, women and girls feel more insecure in public spaces than men and boys (Johansson & Haandrikman, 2021; León et al., 2022; McCray & Mora, 2011; Skår, 2010), and are considered more vulnerable by their relatives (Hatamzadeh et al., 2017; Osman & Jíchová, 2019; Vozmediano et al., 2017). As a result, such concerns may discourage women from using public spaces equally to men (Carver et al., 2010; Soltani & Zamiri, 2011; Tandogan & Ilhan, 2016). Such an effect occurs even though women are actually less likely to experience victimisation than men (May et al., 2010).

Yet, some studies have found that the dichotomy based on fearful women and fearless men is too simplistic – for instance, the gender differences in unsafety perceptions can change over time and space and due to perceived threats (Johansson et al., 2012; Pánek et al., 2017; Rišová & Sládeková Madajová, 2020) or crime type (Chataway & Hart, 2019). The complexity of this problem has not been sufficiently explored, especially in the case of adolescent girls living in small-scale settlements, which are

generally neglected in fear-related studies. Unsafety perception research focusing on gender differences in the case of younger adolescents (up to 15 years old) is limited and, to our knowledge, that pertaining to constrained behaviour is non-existent. For example, a limited number of adolescents (nine) took part in a study by Van der Burgt (2015), yet the participants were 16 to 19 years old. Similar research involving slightly younger participants (with a mean age of 15) was carried out by Krulichová and Podaná (2019), although this provided no information regarding details on the precautionary strategies of adolescents, only the result that girls apply avoidance behaviour more often than boys.

To address this research gap, this study presents results pertaining to younger adolescents (with a mean age of 12.81). The aim of this study is to analyse gender differences in the unsafety perceptions of adolescents living in a very small town, with a special emphasis on the temporal variations in unsafety perceptions, perceived threats, and precautionary behaviours, which, according to some authors can be defined as the activities people do to protect themselves from crime and reduce their risk of victimisation (Krulichová & Podaná, 2019; May et al., 2010), while others mention precautionary actions and strategies in

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[a] Institute of Geography, Slovak Academy of Sciences, Bratislava, Slovakia (*corresponding author: K. Rišová, e-mail: *geogriso@savba.sk*)

[b] Department of Geography and Geology, Faculty of Natural Sciences, Matej Bel University in Banská Bystrica, Banská Bystrica, Slovakia

connection with the response to fear or an attempt to reduce it (Doran & Burgesss, 2011). Our study is based on the paradigm that teenagers are not passive but "actively negotiate risk and promote safety in public space and are active – as well as socially and spatially competent – agents in their everyday lives" (van der Burgt, 2015, 193). The research questions were formulated as follows:

- Are there any significant gender differences in unsafety perception? If so, do they vary according to the time of day?
- Are there any gender differences in threat perception? If so, do they vary according to the time of day?
- Are there any differences in precautionary behaviours applied in areas perceived as unsafe by girls and boys? If so, do they vary according to the time of day?

Additionally, there is also a research gap pertaining to the geographical study area selection. Unsafety perception studies have so far focused on medium- to large-sized cities (with the exception of e.g. Jakobi & Pődör (2020) who examined also towns with a population of 10–20 thousand inhabitants, but with only adult participants involved). In order to obtain complex knowledge on unsafety perceptions, there is a need to conduct studies in various types of urban as well as rural environments, and with various morphological structures, transport systems, and social conditions.

2. Theoretical Background

In the 1990s, the reasons why women are more afraid in public space than men began to be discussed from two main perspectives: the traditional and feminist viewpoints. The first one explained the differences as due to women's overall tendency to be fearful more than men. For example, a well-known study pertaining to the gender differences in fears and phobias by Fredrikson et al. (1996), found that women struggle with fears and phobias more often not only in general, but also when looking at some specific phobias, including that of the darkness. Yet, the discussion has been primarily focused on the fear of crime while omitting other types. According to the feminist approach, women feel less safe since in public spaces, which are subordinated to patriarchal principles, they are objectively threatened more often. There, due to social constructs, women face dominant masculinity (Hanmer & Saunders, 1993; Mehta, 1999; Stanko, 1990) and, in some cases, misogyny (Bhattacharyya, 2015). In addition, due to having a biological predisposition for a smaller and weaker figure, they are less likely to defend themselves (Hale, 1996).

Another discussion has pertained to the fact that women, despite being objectively less likely to be victimised compared to men, report fear of crime more often (Ferraro, 1996; Jacobsen, 2021). This discrepancy, the so-called gender-fear paradox, has been explained by several hypotheses. The most often mentioned is the "shadow of sexual assault" hypothesis, which is based on the theory that women's fear of sexual assault increases other fears, especially those of personal assault, as fear of crime is often perceived in connection to fear of rape (Ferraro, 1996).

Other possible explanations for the gender-fear paradox are based on social constructs and gender stereotypes. From a young age, girls are socialised differently to boys, which leads to a belief in their own vulnerability and inability to face potential threats in public spaces. Parents and peers are the most important contributors to gendered socialisation (Kĺgesten et al., 2016), but educational institutions (Bhattacharjee, 2021; Chen & Rao, 2011), the media (Kang & Hust, 2022), and gender-typed marketing (Lipowska & Łada-Maśko, 2021) are also important. A study by Endendijk (2022) conducted in the Netherlands showed that subtle gender-based expressions by parents based on the infant's sex exist as early as birth announcement cards. Children begin to express gender-typical behaviour in early childhood. For example, Boe and Woods (2017) observed 12.5-month-old babies with gender-typical toy preferences. Areas of child development that affect gender roles include vocalisation, socialisation, play, toys, dress, and décor (Morawska, 2020), with all of them showing children what is "appropriate" for boys and for girls. Gender-specific toys seem to prepare girls for their gender roles in adulthood, by encouraging them to be domestic, take care of the household and children, and have hobbies, while toys for boys are focused on professions, expertise, heroism, aggressivity, action, competition, and dominance (Blakemore & Centers, 2005; Reich et al., 2018). Another gender-typed phenomenon is superhero exposure, which is not only associated with heroism and action but has also, in the case of boys, been proven to be associated with weaker egalitarian attitudes toward women (Coyne et al., 2022). On the other hand, playing the princess in the case of girls teaches them to be nice and passive (Golden & Jacoby, 2018).

Gender socialising is not only a matter of childhood, however, but intensifies during adolescence (Basu et al., 2017; Hill & Lynch, 1983). During this period, gendered parental communication (e.g. different rules, sanctions, norms and expectations for sons and daughters), as well as stereotypical masculinity and femininity norms (e.g. physical toughness, autonomy, emotional stoicism, and heterosexual prowess in the case of boys, and showing emotions or physical weakness for girls) play an important role in perpetuating gender inequality (Kĺgesten et al., 2016).

A study by Moreau et al. (2021) conducted in culturally different cities in Kinshasa, Shanghai, Cuenca, and Indonesia showed that patterns of gender norms vary based on cultural background. Even in societies with prevailing egalitarian parenting, and where explicit gender-based expectations on children are absent (e.g. "dolls are for girls"), implicit and unconscious gendered parenting practices still exist – through direct messages regarding children's behaviours, skills, and interests, as well as through indirect ones directed at others (Mesman & Groeneveld, 2018).

Looking at adults and public space, Day (2001) compared it to a stage where gender identities are performed – men present themselves as brave and tough and contrast this with women whom they consider fearful and vulnerable, even if they perceive public space as safe. According to the same author, however, women can also play up their gender identities by themselves calling for protection and chivalrous behaviour from men to appear fragile and dependent. On the other hand, according to Sutton and Farrall (2005), men often tend to give socially desirable responses regarding their fear levels instead on expressing their true feelings, pointing to the fact that they may be more afraid than they admit. This is in line with the normative perspective of gender norms and traditional masculinity ideology, according to which men should e.g. avoid femininity, be tough, dominant and have restricted emotionality (Levant et al., 2013), as well as with some other masculinity features such as self-control, competition, aggression and physical strength (Day et al., 2003).

Gender differences are also visible in constrained (precautionary, adaptive) behaviour. Most authors have agreed that precautionary strategies can be either passive, referring to avoidance behaviour or active, involving protective or defensive actions (e.g. Doran & Burgess, 2011; Krulichová & Podaná, 2019; May et al., 2010; Stark & Meschik, 2018). The classification of precautionary strategies across studies is not uniform, however. Looking at avoidance behaviour, general agreement is that avoidance has its spatial (to avoid certain places), spatio-temporal (to avoid certain places at certain times) and temporal (e.g. to avoid going out at night) dimensions (e.g. Ceccato et al., 2021; Van der Burgt, 2015). Other authors consider abstaining from certain events, activities (May et al., 2010) or types of people (Krulichová & Podaná, 2019)

to be avoidance behaviour as well. Moreover, the definition of avoidance behaviour may vary based on the specifics of the research. For example, in a transport environment, avoidance can be manifested in avoiding particular routes, stops, destinations and travel modes (Stark & Meschik, 2010). As shown by Doran and Burgess (2011), the level of avoidance relates to specific types of perceived threats, as well as it differs according to the time of the day, with night-time being related to the highest levels of avoidance.

Looking at protective and defensive actions, these can be defined as "strategies for dealing with the risks you come across" (Van der Burgt, 2015, 182) and are most frequently linked to property and personal crime. Property crime – e.g. protecting one's home from break-in or robbery by installing alarms and other items for security reasons (Ferraro & LaGrange, 1987; Jackson & Gouseti 2012; May et al., 2010), is, however, not a subject of our study (with the exception of robbery committed in public space). On the other hand, regarding personal crime, research to date has shown people using various actions to prevent it and feel safer (e.g. carrying a weapon or repellent, being accompanied by a person or a dog, pretending to have a 'phone call) – for more detailed information see e.g. Stark and Meschik (2018) and Tandogan and Ilhan (2016).

As shown by some authors, however, people use more varied risk management and fear-managing strategies than just avoidant and protective behaviour. For example, Van der Burgt (2015) revealed avoidance, risk-confronting (like defensive) and empowerment strategies to be implemented by older teenagers. There, empowerment strategies are mentioned in relation to resisting representations and feelings of fear and risk and are mostly represented by telling yourself there is no reason to be afraid and claiming public space (insisting on ones right to the city) – for more details of related studies see e.g. Koskela (1997), Panelli et al. (2005), Sandberg and Coe (2020) and Sandberg and Rönnblom (2013).

Research to date has shown that women engage in avoidance behaviour more often compared to men (e.g. Krulichová & Podaná, 2019; May et al., 2010). In terms of defensive behaviour, however, the results are inconclusive. While some authors found men applying defensive behaviour more often than women – especially weapon carrying (Baiden et al., 2021; Kuntsche & Klingemann, 2004), other researchers observed the opposite results (Maruthaveeran & Van den Bosh, 2015; May et al., 2010).

Similar findings were revealed when considering transit environments, where females tend to take precautionary behaviour significantly more often than males (Ceccato et al., 2021). Even so, women cannot be considered a homogenous group in this regard. For example, as found by Stark and Meschik (2018), women who have endured frightening experiences tend to avoid certain destinations, routes, and travel modes more than others. Moreover, d'Arbois de Jubainville and Vanier (2017) found that not only those women who have already experienced victimisation, but also older and highly educated ones avoid certain times of the day, as well as transportation lines and places.

3. Methods

3.1 Study area

This research was conducted in the very small post-socialist town of Fiľakovo located in a southern periphery of Slovakia (Central Europe), which is typical for its economic deprivation and related migration from the region (Fig. 1). As of December 31, 2022, the number of inhabitants was 9,770, and
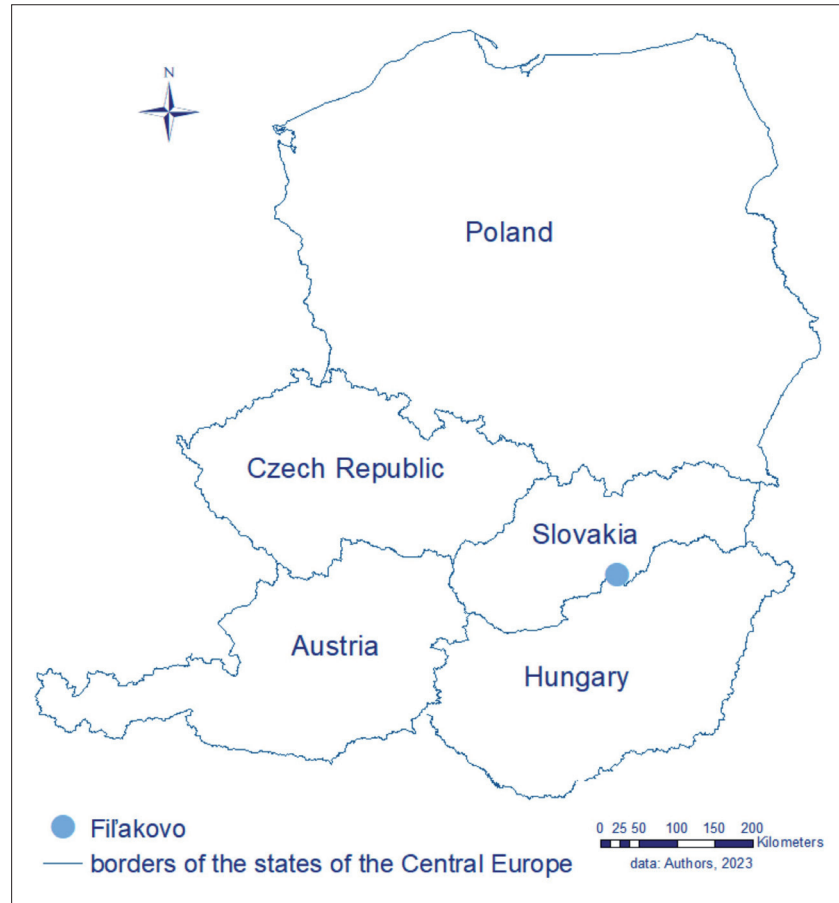

Fig. 1: Location map of the study area (Fiľakovo) in central Europe
Source: authors' elaboration

since 2011 the population decreased by 9.55% (Statistical Office of the Slovak Republic, 2023). Since the town is not served by intra-urban public transport, there is a need for adolescents to choose other transport modes, such as travelling by car with adults or walking. Especially walking through the town creates a prerequisite for one's own direct experience with public space, along with potential threats that could be found there. The study area was chosen with the assumption that adolescents that are more dependent on walking have more personal experience with public space to take part in this kind of research compared to those living in other urban areas. The study area was set within the administrative boundaries of the municipality, with town districts that are not part of the compact built-up area of the town being excluded from the research (Fig. 2), since their morphological structure is like that of rural settlements, as well

as these districts are not reachable by foot, and therefore not relevant for this research. The study area is typical for its various morphological and functional structure and was built gradually in different time periods. Looking at population structure, Fiľakovo is typical for its ethnic and racial heterogeneity. The share of inhabitants with Slovak nationality in Fiľakovo is 28.02%, with Hungarians comprising the largest minority (Juhascíková et al., 2012).

Additionally, a non-negligible part of the population (31−40%) belongs to marginalised Roma communities (MVSR, 2019). Most studies from the United States and Europe have shown that ethnicity, race, and diversity are strongly associated with fear of crime (e.g. Eitle & Taylor, 2008; Hooghe & de Vroome, 2016; Quillian & Pager, 2001). Hipp (2013), on the other hand, found very little evidence of this.
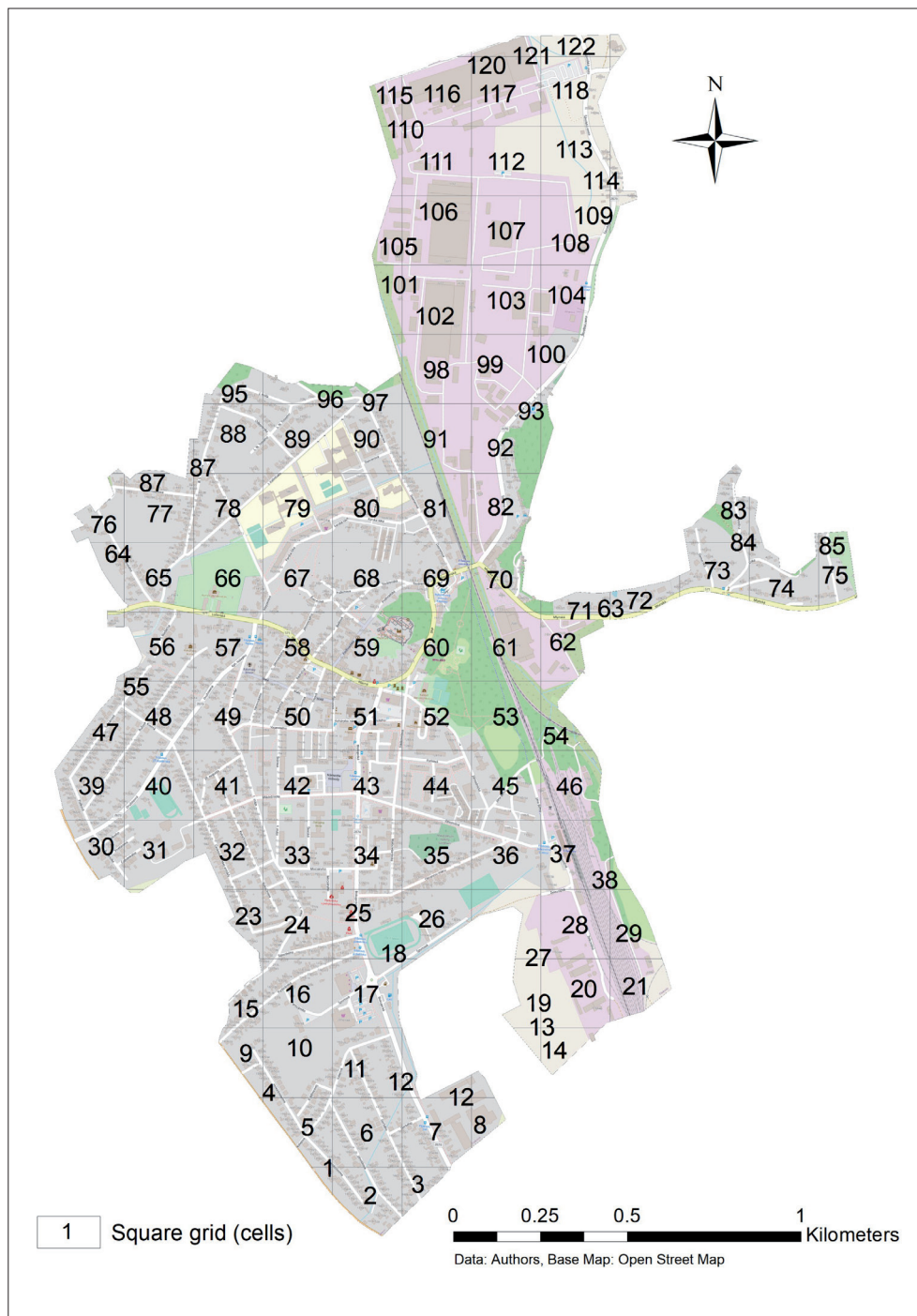

Fig. 2: Map of the study area divided by a square grid with numerically assigned cells
Source: authors' elaboration based on Open Street Map

3.2 Participants and procedure

Unsafety perception of children and adolescents in public space has often been studied using questionnaires with the possibility to obtain a large sample of participants, yet with limited information on respondents' behaviour – most often with the aim of quantifying (e.g. Bromley & Stacey, 2012; Christian et al., 2016b; Johansson et al., 2009; Krulichová & Podaná, 2019). On the other hand, focus groups and in-depth interviews (e.g. Reese et al., 2001; Molnar et al., 2005) enable a deeper explanation of individuals' perceptions, with only a limited number of participants. When adequately designed, mapping techniques, on the other hand, allow us to maintain a sufficiently large research sample for quantitative analysis, while providing us with the possibility to partially understand the context of individuals' unsafety perceptions (e.g. McCray & Mora, 2011; Rišová & Sládeková Madajová, 2020).

This study was based on emotional mapping, which has proven to be a suitable tool for examining unsafety perception in public space (see e.g. Jakobi & Pődör, 2020; McCray & Mora, 2011; Pánek et al., 2019; Rišová & Sládeková Madajová, 2020). Additionally, mapping activity has also been shown to be an effective tool for examining young adolescents' feelings towards different places in an urban environment (Van Der Burgt, 2008). The data collection took place in one of the primary schools in Fiľakovo. The final sample consisted of 151 pupils between the ages of 10 to 16 (46.36% girls), and was divided into categories according to gender, age, and residential location (Tab. 1). This age group was chosen for several reasons. First, there has been a decline in the number of children who walk to school (Gallimore et al., 2011). Safety perception is one of the key predictors in this regard, particularly in the case of girls (Hatamzadeh et al., 2017; Soltani & Zamiri, 2011), in addition to the fact that individuals tend to avoid places they perceive to be threatening (Madge, 1997; Ratnayake, 2017). Second, as 10- to 16-year-olds do not have driving licences, it is assumed that they use public spaces sufficiently frequently to be able to evaluate them appropriately. Third, it was important to involve young people in this study because they are one of the most overlooked categories of public space users. Finally, as pointed by Bromley and Stacey (2012), adolescents belonging to this age group have usually gained the independence to move around their homes alone.

The mapping activity was performed following Rišová and Sládeková Madajová (2020) and Rišová (2021). The activity was performed in 10 classes, while its duration was 45 minutes, i.e. of one class lesson each. The participants were given a map of the town divided by square grids of numerically assigned cells measuring 200 × 200 metres. The total number of cells was 123. Open Street Map was set as a base map. The grid range was limited to the compact built-up area of the town. The size of the map as well as the quality of the base map were chosen so that the map was as readable as possible even for the youngest pupils involved, e.g. the map was large enough so the participants could read names of the streets. Participants in each class formed two groups, each of them working with one large map of the town. Each participant was given a printed pre-prepared reply form that asked about their safety perceptions and precautionary behaviour. Participants were asked to fill the forms without the mutual influence of their classmates, but we are aware that this cannot be completely eliminated, since they are used to communicate with each other. Both the teacher and the researcher were present during the entire activity to help the pupils if needed.

The form consisted of two parts, with the first of them focusing on basic personal characteristics such as age and gender, while the second part of the form consisted of questions regarding unsafety perception. Each question was explained to them before they answered. They were then asked to find basic landmarks (e.g. their school) to ensure that they were able to read the map properly. To avoid any General Data Protection Regulation (GDPR) violations, the form was anonymised; it contained no information that might have led to the identification of an individual.

3.3 Data and calculations

To examine the unsafety perceptions, the participants were asked to respond to the following statements: (1) in daylight, I do not feel safe in these cells; (2) after dark, I do not feel safe in these cells. In each case, the maximum number of markable cells was 5, to ensure that participants mentioned only places that are the most important for them.

Differences in the number of marked cells were statistically tested using T-tests, with an assumption that more fearful individuals mark a greater number of cells. Pupils were also asked to give a reason for their answers for each marked cell. The reasons were considered to be perceived threats. Following Rišová and Sládeková Madajová (2020), the threats were clustered into categories. Some of the participants described reasons for marking cells extensively, and therefore it was possible to classify them into a greater number of threat categories. The relationship between the gender and threat category variables was tested using Pearson's Chi-squared test of independence, separately for daylight and after dark.

To obtain information on risk management behaviour, participants were asked to state what type (if any) risk management strategy they use in places perceived as unsafe in daylight and after dark. In the same manner as the perceived threats, the risk management strategies were thematically clustered into categories. Several participants mentioned more than one strategy – in that case, each was categorised separately. In addition, three types of precautionary behaviour were identified: (1) avoidance behaviour (avoiding certain places or people; not going out at all); (2) dependence (reliance) on someone else's help or as a companion when moving through public space; and (3) self-reliance (e.g. self-defence, to move quickly, ignoring problematic people) when moving through public space. Using Pearson's Chi-squared test of independence, these questions were answered:

- Is there a statistically significant dependence between the variables "gender" and "precautionary behaviour"?

- Is there a statistically significant dependence between gender and choosing avoidance among other types of precautionary behaviour?

- Is there a statistically significant dependence between gender and choosing dependent behaviour among other types of precautionary behaviour?

- Is there a statistically significant dependence between gender and choosing self-reliance among other types of precautionary behaviour?

The test was performed for data regarding daylight and after dark separately.

Category		Number	%
Gender	Girls	70	46.36
	Boys	81	53.64
Age	Younger (10–12-year-olds; Mean = 11.45)	71	47.02
	Older (13–16-year-olds; Mean = 14.03)	79	52.32
	Not specified	1	0.66
Residence	Local	94	62.25
	Commuter	57	37.75

Tab. 1: Basic characteristics of the sample
Note: Commuters are participants living outside Fiľakovo town, but commuting to school daily
Source: authors' survey

4. Results

4.1 Gender differences in unsafety perception

The results show no gender differences in number of marked cells, which means that neither girls nor boys felt less safe (Tab. 2). Although boys marked more cells compared to girls both in daylight and after dark, the differences were not significant (p > .05). On the other hand, the residential location and age of the participants played more important roles in unsafety perception differences. The residents of the town under study reported unsafety perception to a greater extent compared to commuters, with significant differences both during daylight and after dark (p < .05). Age differences proved to be significant only in daylight, with older participants feeling more unsafe compared to their younger counterparts (p < .05).

4.2 Gender differences in perceived threats

The results of the Chi-squared test showed a statistically significant association between the variables "gender" and "threat category" perceived in daylight ($\chi^2 = 16.94$, degrees of freedom [df] = 9, p = 0.0497). As shown in Table 3, in daylight, both genders were most afraid of (1) people in general – with girls stating this reason significantly more than boys ($\chi^2 = 7.14$, df = 1, p = 0.008), (2) buildings, streets, and places with negative associations (e.g. cemetery, old abandoned swimming pool, castle) – with no statistically significant gender differences, and (3) general feelings (e.g. "I do not feel well there," "bad feelings") – with no statistically significant gender differences as well.

Looking at the detailed threats description, boys were most scared of the Roma minority (67.90%), while these were mentioned by 50.00% of girls only. The more important threats for girls were individuals described as "unpleasant," "weird," "insane," "dangerous," "bad," "bad company," etc. (62.86% of girls, 56.79% of boys) and people under the influence of drugs, alcohol, or drug dealers (61.43% of girls, 46.91% of boys). Girls were also more scared of perverts and paedophiles (8.57%; 2.47%), there being too many people (8.57%; 2.47%) and fighters (5.71%; 1.23%). Additionally, perceived threats were often based on the participants' personal experience. This was explicitly stated for 24 cells (of which 23 were people-related), for instance, "I found a syringe," "They chased me there," "(…) I fought there several times," "They attacked me there," "They shouted at me and threw stones," "Addicts wanted to give me drugs there," and so on. Boys reported a bad experience more often (18.52%) compared to girls (11.43%).

After dark, the results obtained using Chi-squared test proved that the relationship between the gender and threat category perceived after dark variables was statistically significant ($\chi^2 = 20.99$, df = 10, p = 0.021). As shown in Table 4, after dark, the most important threat categories stated by both genders were (1) people-related, (3) buildings, streets, and places with negative associations, and (2) darkness and a lack of lighting. Girls were significantly more scared of people compared to boys ($\chi^2 = 7.32$, df = 1, p = 0.007). On the other hand, boys reported feeling significantly more unsafe in buildings, streets, and places with negative associations compared to girls ($\chi^2 = 7.97$, df = 1, p = 0.005). For instance, boys noted feeling more unsafe due to the cemetery and ghosts (13.58%; 4.23%). On the other hand, darkness and a lack of lighting was stated by 11.43% girls and 9.88% boys, although, the difference did not prove to be statistically significant. In terms of the detailed threats description, unlike in daylight, people under the influence of drugs, alcohol or drug dealers were the most often mentioned people-related threat by both genders (44.29% in the case of girls, 41.98% in the case of boys). Moreover, girls struggled more with the Roma minority (41.43%) compared to boys (33.33%), which contrasted with daylight values. As in daylight, however, individuals described as "unpleasant," "weird," "insane," "dangerous," "bad," or "bad company," were mentioned more often by girls (34.29%) than by boys (23.46%).

	Gender				Statistics		
	Mean in group		Median in group		Prevailing	p-value	Significance
	Boys	Girls	Boys	Girls			
Day	2.74	2.43	3	2	Boys	0.222	No
Night	1.86	1.86	1	1	Boys	0.980	No
	Residential location						
	Mean in group		Median in group		Prevailing	p-value	Significance
	Locals	Commuters	Locals	Commuters			
Day	2.86	2.16	3	2	Locals	0.008	Yes
Night	2.17	1.35	2	1	Locals	0.004	Yes
	Age						
	Mean in group		Median in group		Prevailing	p-value	Significance
	Younger	Older	Younger	Older			
Day	2.24	2.91	2	3	Older	0.009	Yes
Night	1.75	1.96	1	2	Older	0.448	No

Tab. 2: Differences in unsafety perception according to gender, residential location, and age
Source: authors' survey

Threat categories	Frequency girls	Per 100 girls (%)	Frequency boys	Per 100 boys (%)
People-related threats	142	202.86	158	195.06
Buildings, streets, places with negative associations	13	18.57	28	34.57
General feelings description	7	10.00	7	8.64
Other ("it's high," "I may fall," coronavirus, etc.)	2	2.86	9	11.11
Lack of people, empty, abandoned	2	2.86	0	0
Traffic	1	1.43	2	2.47
School	1	1.43	6	7.41
Dogs	1	1.43	4	4.94
"I don't know it there," "it's far away"	1	1.43	4	4.94
Dilapidated buildings, broken objects, syringes	0	0	2	2.47

Tab. 3: Perceived threat categories in daylight
Source: authors' survey

Threat categories	Frequency girls	Per 100 girls (%)	Frequency boys	Per 100 boys (%)
People-related threats	100	142.86	93	114.81
Buildings, streets, places with negative associations	9	12.86	29	35.80
Dark and lack of lighting	8	11.43	8	9.88
General feelings description	4	5.71	3	3.70
Lack of people, empty, abandoned	3	4.29	2	2.47
"I don't know it there"	2	2.86	2	2.47
Wild animals	1	1.43	0	0.00
School	1	1.43	2	2.47
Dogs	0	0.00	6	7.41
Traffic	0	0.00	2	2.47
Other	0	0.00	2	2.47

Tab. 4: Perceived threat categories after dark
Source: authors' survey

4.3 Gender differences in precautionary behaviour

In places perceived as unsafe, the participants implemented a wide range of risk management strategies, which can be further categorised as avoidant, dependent, and self-reliant behaviours. In daylight, 84.29% of girls and 82.72% of boys mentioned at least one risk management strategy in the form. In the daytime, avoidance behaviour included avoiding certain people or places, but no participant stated to avoid going out in a particular time period. Dependent behaviour involved walking where people are or having a companion (friends or parents), calling someone (friends, parents, or police), and screaming (for help). On the other hand, self-reliance was represented by changing the road after encountering a threat (e.g. "I go away," "I take a detour," "I turn around and go in another direction," or "I hurry away"), self-defence (e.g. "I will find a weapon and use it"; "I will beat them," or "I will defend myself"), not communicating with problematic people or strangers or ignoring them (e.g. "I ignore them" "I leave it as it is," "I don't talk to strangers," "I don't communicate," "I don't listen to strangers," "I don't make eye contact", or "I pretend not to hear"), carrying a weapon (a knife, a pen), to move quickly (e.g. "I run," "I move quickly," "I quicken my step"), feigning a phone call, pretending to not be afraid, being careful, and hiding after seeing a threat (Tab. 5). In the daytime, the results of the Chi-squared test showed a statistically significant association between the variables "gender" and "precautionary behaviour" ($\chi^2 = 11.91$, df = 2, p = 0.003). Girls implemented dependence among other types of behaviour significantly more often compared to boys ($\chi^2 = 10.29$, df = 1, p = 0.001). On the other hand, no significant gender differences were found when looking at avoidance and self-reliance.

After dark, at least one risk management strategy was reported by 74.29% of girls and 71.60% of boys. The avoidance behaviour after dark referred not only to avoiding certain people or places, but also not going out at all (e.g. "I do not go out after dark at all"). As in the daylight, dependent behaviour included calling someone, screaming for help and walking where people are or having

a companion (friends or parents). Self-reliance concerned being close to lighting ("I am at lights," or "I always carry something that lights up"), carrying a weapon (keys, a gun), self-defence (e.g. kickboxing, martial arts, "I will defend myself"), changing the route after encountering a threat (e.g. "I will go away," "I will go home," or "I will take a detour"), moving quickly (e.g. "I run," "I move quickly," "I am in a hurry," or "I ride a bike to be faster"), not communicating with problematic people and strangers (e.g. "I ignore them," " I don't talk to them," "I don't communicate," "I don't listen to them," or "I don't make strong eye contact"), being careful, hiding after seeing a threat, pretending to not be afraid and feigning a phone call (Tab. 6). After dark, the relationship between the variables "gender" and "precautionary behaviour" proved to be statistically significant ($\chi^2 = 7.07$, df = 2, p = 0.029), with girls choosing dependence among other types of precautionary behaviour significantly more often than boys ($\chi^2 = 4.88$, df = 1, p = 0.027). Avoidance and self-reliance behaviour was gender neutral.

4. Discussion and conclusions

This study used data on the unsafety perceptions, perceived threats, and precautionary behaviour reported by adolescents to question some of the gender stereotypes regarding fear in urban areas. Several important results emerged.

First, regardless of the daylight, girls did not feel significantly less safe compared to boys, which contrasts with the prevailing body of literature pertaining to adults (Johansson & Haandrikman, 2021; León et al., 2022; Mak & Jim, 2018; Soto et al., 2022), as well as adolescents (Johansson et al., 2009; McCray & Mora, 2011; Rišová & Sládeková Madajová, 2020). This can be explained by the underrepresentation of those threats that have been generally considered to cause the gender differences in unsafety perceptions. In particular, the fear of sexually motivated perpetrators which, according to the "shadow of sexual assault" theory, is the primary cause of the gender-fear

Risk management strategies	Frequency girls	Per 100 girls (%)	Frequency boys	Per 100 boys (%)
Avoiding certain people or places	14	20.00	20	24.69
Calling someone	6	8.57	1	1.23
Changing the road after encountering a threat	2	2.86	9	11.11
Self-defence	0	0.00	8	9.88
Being careful	2	2.86	3	3.70
Not communicating with problematic people or strangers	13	18.57	15	18.52
To hide	0	0.00	2	2.47
Pretending to have a phone call	2	2.86	0	0.00
Pretending to not be afraid	2	2.86	1	1.23
Screaming (for help)	2	2.86	1	1.23
To carry a weapon	1	1.43	2	2.47
To have a companion/to walk where people are	18	25.71	5	6.17
To run/move quickly	16	22.86	3	3.70

Tab. 5: Risk management strategies implemented in daylight by the participants
Source: authors' survey

Risk management strategies	Frequency girls	Per 100 girls (%)	Frequency boys	Per 100 boys (%)	Prevailing
Avoiding certain people or places	13	18.57	10	12.35	Girls
Calling someone	2	2.86	1	1.23	Girls
Changing the route after encountering a threat	4	5.71	6	7.41	Boys
"I am at lights," "I always carry something that lights up"	2	2.86	1	1.23	Girls
Being careful	2	2.86	2	2.47	Girls
Self-defence	0	0.00	3	3.70	Boys
"I do not go out after dark at all"	7	10.00	15	18.52	Boys
Not communicating with problematic people or strangers	9	12.86	7	8.64	Girls
To hide	1	1.43	0	0.00	Girls
Pretending to have a phone call	1	1.43	0	0.00	Girls
Pretending to not be afraid	2	2.86	0	0.00	Girls
Screaming for help	1	1.43	0	0.00	Girls
To carry a weapon	1	1.43	2	2.47	Boys
To have a companion/ to walk where people are	18	25.71	5	6.17	Girls
To run/move quickly	10	14.29	6	7.41	Girls

Tab. 6: Risk management strategies after dark reported by the participants
Source: authors' survey

paradox (Ferraro, 1996), was rarely explicitly mentioned by the participants. In addition, when considering fear of the dark, which has been proven to be a more serious concern in the case of adult women compared to men (Fredrikson et al., 1996), as well as in case of adolescent girls compared to boys (Johansson et al., 2009; Rišová & Sládeková Madajová, 2020), no significant gender differences were found in our study.

Second, in both daylight and after dark, the relationship between the variables "gender" and "threat category" proved to be statistically significant. In daylight, the subject of gender differences was the people-related threat perception, with girls perceiving such a threat category significantly more often compared to boys. After dark, significant gender differences were found in people-related threats (with girls mentioning them more often), as well as in buildings, streets, and places with negative associations (mentioned more by boys). In line with Bromley and Stacey (2012) and Rišová and Sládeková Madajová (2020), regardless of the time of the day, girls stated that they more often struggle with people under the influence of drugs, alcohol, or drug dealers. In addition, girls more frequently observed individuals described as "unpleasant," "weird," "insane," "dangerous," "bad," "bad company," etc., as a threat. This relates to findings by Bastomski and Smith (2017) reporting women being more sensitive to public incivility compared to men, especially when considering tailgating, pushing in crowded spaces, and yelling or cursing. Interestingly, in Fiľakovo, traffic was hardly mentioned as a threat. This can be explained by the size of the town, together with its spatial peripherality and related low traffic volume. Nevertheless, findings from studies conducted elsewhere are inconclusive, as some of them show traffic to be a gender-neutral threat (Johansson et al., 2010, 2012), while others claim that girls struggle more with it (Oestreich et al., 2021).

In terms of precautionary behaviour, regardless of the time of the day, in places perceived as more unsafe, girls performed dependence among other types of behaviours significantly more often than boys. For example, girls tend to call someone to feel safe to a greater extent compared to boys. In the literature, using a mobile phone has been shown to be a common risk management strategy in public space (e.g. Ceccato et al., 2021; Stark & Meschik, 2018). In a study by Nasar et al. (2007), female university students felt safer with mobile phones than males. After a crime, however, males called for help more often than girls. On the other hand, in the same analysis, females more often than males reported feeling encouraged when carry a mobile phone to walk somewhere they would not normally go.

Other dependence strategies including having a companion, whether friends or parents, which girls implemented more often. This is in line with literature examining only women, showing that they prefer to have social support while using public space due to safety reasons (Krenichyn, 2004). On the other hand, a study by Foster et al. (2004) examining both genders reported no significant gender differences in preferring to have company during a walk among adults. Looking at actual walking, however, an analysis by Clifton and Livi (2005) found men walking alone significantly more often than their women counterparts, while women walked with family or friends significantly more often compared to men. In a study by Molnar et al. (2005), adolescent girls found using escorts as an effective strategy to prevent violence and stay safe. According to Clifton and Livi (2005), dog walking is also positively associated with feeling of safety (Cutt et al., 2007; Cutt et al., 2008), with the effect being stronger in the case of women (Christian et al., 2016a). In a study by Christian et al. (2016b), being accompanied by an older sibling or a family dog was positively associated with the independent mobility of children and adolescents. In our research, however, no participant mentioned walking a dog as a risk management strategy.

Interestingly, no gender differences were found regarding avoidance and self-reliance. The findings concerning avoidance behaviour contrasts with the prevailing body of literature showing women being more avoidant (Krulichová & Podaná, 2019; May et al., 2010). In studies examining adolescents, avoiding dangerous people, staying home, and remaining calm when confronted, were among the main violence-preventing strategies among girls (Molnar et al., 2005), while boys in a study by Reese et al. (2001) did not consider it beneficial to walk away from a fight, as it could ultimately lead to bullying.

In Slovakia, gender differences in unsafety perception of adolescents (without considering risk-management strategies) were examined only in Banská Bystrica city, which, however, is of different population size, not peripheral, and is racially and ethnically homogenous when compared to Fiľakovo (Rišová & Sládeková Madajová, 2020). On the other hand, spatio-temporal patterns of adolescents' unsafety perception in a small peripheral Slovak town of Želiezovce was examined in the study by Lorenc & Rišová (2022), but without considering gender differences. In contrast with both the studies mentioned above, in our research, the Roma minority was mentioned with much more negative associations by the participants. In addition, in Fiľakovo, adolescents mentioned their own experience with crime (physical attacks, drug sales, etc.), which was not the case in other two studies. On the other hand, in Fiľakovo, only a few participants did mention fear of cemeteries, scary places and mysteries in general, while in Rišová and Sládeková Madajová (2020) and Lorenc and Rišová (2022), fear of places with negative associations and statements like "it haunts there" were among the most often mentioned threats in public space.

Our results are subject to several limitations. First, we do not know to what extent the participants' decisions regarding avoidant behaviour were the subject of their own choice, as in this age group, the influence of parents can still play an important role in risk management behaviour, as well as in overall decision-making processes. Another limitation pertains to the research design, as the data were obtained using pre-prepared forms, so the information on motivations and reasons for the behaviour are not extensive. Insufficient map literacy of children and adolescents can affect results as well, but to mitigate such an effect, participants in this study were provided with continuous assistance from both the teacher and the researcher, and the map was large enough so the participants could read names of the streets and the map was adapted to the research accordingly as well. Additionally, response bias (such as e.g. socially desirable responding) were not measured and controlled in this study. Also, the results can be biased by the specifics of the research area, as small towns with a high degree of peripherality and economic deprivation may create different types of threats compared to other types of settlements. Therefore, the results should be interpreted accordingly. Finally, it is important to be careful when comparing our results with studies using different methodologies. The specifics of research on unsafety perception are related to various methods of data collection (questionnaires, interviews, mapping activity, etc.), as well as different approaches to data analysis (qualitative/quantitative/combination), which can also affect the nature of the results obtained. Each of the mentioned methods can be limited in terms of results accuracy, missing or insufficient information about the context, and explanation.

We showed that even in the case of adolescents, the idea that girls perceive more threats than boys is rather simplistic and should not be considered universally valid. The extent to which girls and boys perceive danger in public space depends on the type of threat. This study also confirmed that the perception of women as more avoidant is a certain form of gender stereotype and should not be considered a generally valid paradigm. Regardless of gender, however, the impossibility of free independent movement around the city is limiting and directly affects the quality of public space use, as well as endangering social justice. Therefore, in the future, researchers and municipalities should consider how to help their residents and visitors to feel safer. Municipalities can collect detailed behavioural data on unsafety perception and risk-management strategies to gain knowledge on possibilities to enhance public space use, to protect their inhabitants if possible, and to promote equality in public space. This study showed a possibility for such data collection directly during a class-lesson, which has an advantage especially in terms of time efficiency (the possibility of collecting large amounts of data in a short time), while enriching school teaching by exercises focused on of spatial orientation. Such techniques can be, however, used for other groups as well, for example the elderly can participate in the research in the pensioners' club (a common facility in Slovak towns), while other groups can practice mapping techniques in addition to focus groups methods.

Acknowledgments

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