Neighborhood Social Cohesion and Perceived Safety: Exploring Gender Moderation in a Dutch Context

Kris Ekhart

Student number: 4765206

Sociology: Contemporary Social Problems

Supervisor: Joey Tang

Second reviewer: Marco van Leeuwen

24-06-2024

Abstract

This study examines the influence of neighborhood social cohesion on perceived safety among Dutch residents, with a focus on gender moderation. Data from the Longitudinal Internet Studies for the Social Sciences (LISS) panel from July 2020 were utilized, resulting in a representative sample of Dutch individuals (N=2532). Several Ordinary Least Squares (OLS) regression analyses were employed to test the hypotheses. Contrary to the expectations, gender did not significantly moderate the relationship between neighborhood social cohesion and perceived safety. However, in line with other research, women reported lower levels of perceived safety than men. This study highlights the importance of neighborhood social dynamics in shaping safety perceptions and provides insights into gender differences in perceived safety in the Dutch context. The study concludes with policy recommendations based on the findings.

Utrecht University

Ethical statement

This study has received approval from the ethical board under FETC registration number 24-0540.

Introduction

Recent research in The Netherlands has shed light on the dynamics of perceived safety, revealing patterns that underscore the intersection of individual and environmental contexts (Akkermans et al., 2022). While individual's safety concerns fluctuate, 14% of individuals report sometimes feeling unsafe in their neighborhoods, compared to a significantly higher 33% of individuals reporting sometimes feeling unsafe in general terms. Additionally, women and older individuals consistently express lower levels of perceived safety and higher levels of fear of crime (e.g., Logan & Walker, 2021; Navarette-Hernandez et al., 2021; Yavuz & Welch, 2010). Moreover, these disparities across gender and age suggest an interplay between demographic factors and safety perceptions (Akkermans et al., 2022), and underscore the multifaceted nature of perceived safety.

Research into the social factors of perceived safety found that differences in perceived safety can be explained by the degree of social cohesion among residents of a neighborhood (Ziersch, Putland, Palmer, MacDougall, & Baum, 2007). Socially cohesive neighborhoods are characterized by strong social connections and trust among neighbors (Allik & Kearns, 2016; Ziersch et al., 2007), and therefore provide the best environment for the realization of informal social control (Sampson et al., 1997). These shared expectations for common norms and social ties among residents serve as a motivation for residents to act as a guardian in their neighborhood (Reynald, 2019), and to intervene when problems arise (Wickes, Hipp, Sargeant & Mazreolle, 2016). Indeed, research has found associations between social cohesion and heightened feelings of indoor and outdoor safety (Allik & Kearns, 2016; Ziersch et al., 2007).

It remains unclear whether the relationship between neighborhood social cohesion and perceived safety is moderated by individual characteristics such as gender. However, research has consistently found that women report lower levels of safety than men (e.g., Logan & Walker, 2021; Navarette-Hernandez et al., 2021; Yavuz & Welch, 2010). Among the explanations for the gender difference in perceived safety is socialization theory, which states that boys and girls are differently socialized with respect to their respective (gender)roles in society (Balvin, 2017; Navarette-Hernandez et al., 2021), and their physical and social vulnerability (Logan & Walker, 2021; Yavuz & Welch, 2010). For instance, boys are socialized to take on protective roles and are taught that their physical strength can prevent harm (Yavuz & Welch, 2010), while girls are socialized to

believe they are more vulnerable to violence than boys (Rader & Haynes, 2011). Therefore, at a later age, men and women may utilize different social strategies with respect to ensuring their personal safety (Zuberi, 2018). To date, limited research has examined the potential moderating role of gender in shaping the relationship between neighborhood social cohesion and perceived safety.

Therefore, this study aims to examine the interplay between neighborhood social cohesion and perceived safety, and the extent to which this relationship is moderated by gender. Three research questions were formulated for this study:

Descriptive question

'What is the effect of neighborhood social cohesion on perceived safety among people in the Netherlands?'

Explanatory question

'To what extent does gender moderate the relationship between neighborhood social cohesion and perceived safety among people in the Netherlands?'

Policy question

'What policies can be implemented in the Netherlands to foster safer neighborhoods among individuals through initiatives that promote social cohesion, taking into account varying perspectives of different genders?'

Ordinary Least Squares (OLS) regression analyses and data from the LISS panel will be used. Specifically, this study utilizes the LISS Panel neighborhood perception single wave study from July 2020 (N=2532). The geographical scope of this study will be The Netherlands, as the influence of neighborhood social cohesion on perceived safety in The Netherlands has remained largely unexplored. Research by Putrik et al. (2019) explored the relationship between crime, fear of crime and feelings of unsafety in the municipality of Maastricht and found that police-recorded crime was only weakly correlated with residents' perceptions of crime. Therefore, the authors conclude, other factors possibly contribute to residents' perceptions of safety, and further research into these factors is needed (Putrik et al., 2019).

The national scope of this study will provide a representative sample of the entire Dutch population, and therefore the results will be generalizable for the Dutch population. Additionally, researching this topic on a national level enables the comparison of different groups within the entire Dutch population. This holistic approach will result in comprehensive insights into the effect of neighborhood social cohesion on perceived safety at the national level, and enables the identification of patterns, trends and disparities that may be overlooked when focusing solely on specific regions or municipalities.

The results of this research may serve several purposes. First, by understanding the relationship between neighborhood social cohesion and perceived safety, policymakers can develop targeted strategies to tackle negative outcomes of lower perceived safety such as lower health outcomes (Baranyi, Di Marco, Russ, Dibben, & Pearce, 2021; Lorenc et al., 2021; Zuberi, 2018) lower social trust among citizens (Sampson, 2012; Sampson, Raudenbush, & Earls, 1997; Zuberi, 2018) and overall lower well-being (Allik & Kearns, 2016). Second, the findings of this research may help develop initiatives aimed at creating more inclusive and equitable neighborhoods. By identifying factors that contribute to variations in perceived safety across gender, policymakers can implement measures to enhance social neighborhood dynamics and the built environment, improve people's perceived safety, and foster community resilience. Third and finally, this study aims to explore the social dynamics that shape perceived safety and to contribute to the existing literature on neighborhood social cohesion in The Netherlands.

Theoretical framework

Crime rates alone may not fully capture how individuals perceive safety and respond to their surroundings. For instance, recent research found stronger associations between perceived subjective crime and its impact on mental health compared to objectively measured crime rates (Baranyi et al., 2021). Austin, Furr & Spine (2002) similarly argue that actual crime rates are just one piece of the puzzle in shaping people's attitudes and behaviors related to safety. Therefore, understanding the broader context of social factors, such as social cohesion, and how they influence safety perceptions is crucial.

Defining Social Cohesion: Theoretical Perspectives and Key Components

Social cohesion refers to connectedness and solidarity among groups in a certain society, community or neighborhood (Manca, 2014). According to Durkheim (1893), a cohesive society is characterized by "mutual moral support, which instead of throwing the individual on his own resources, leads him to share in the collective energy and supports his own when exhausted." This perspective aligns with Manca's (2014) three definitions of social cohesion: a sense of belonging, the need of society members to work together and the recognition of difference and interdependence among society members.

A sense of belonging refers to the development of shared values, challenges, resources and equal opportunities (Manca, 2014). This process is dependent on a sense of hope (Manca, 2014) and trust (Sampson et al., 1997). In this regard, Granovetter (1973) distinguishes between weak ties and strong ties. Weak ties between individuals who are not closely acquainted are crucial for accessing new information and resources, as weak ties may connect residents to resources and information outside their immediate social network. This includes, for instance, job opportunities or social services beyond their close-knit social groups. Consequently, weak ties may contribute to neighborhood social cohesion and individual's well-being by fostering a sense of shared resources and opportunities (Sampson et al., 1997). Moreover, strong ties refer to close relationships between individuals and are therefore important for providing social support, fostering trust and facilitating cooperation (Granovetter, 1973). Thus, both weak and strong ties may contribute to developing social cohesion within neighborhoods.

The need of society members to work together refers to solidarity among residents. In this regard, Sampson (2012) coined the concept of 'collective efficacy', which refers to the degree of social cohesion and shared expectations among community members regarding establishing shared goals and maintaining social order. For collective efficacy, a certain amount of trust and willingness to intervene for the common good is required (Sampson, 2012).

Finally, the recognition of difference and interdependence indicates that homogeneity among residents is not required for social cohesion (Manca, 2014). Instead, social cohesion can be achieved in heterogenous neighborhoods through the interaction of diverse residents, building bonds through the acknowledging differences and interdependence. Sampson (2012) further noted that social cohesion in contemporary societies does not require residents to be friends and that institutional mechanisms may be sufficient. This underscores that social cohesion can develop

through neighborly interactions, even in diverse populations or neighborhoods where neighbors are not closely acquainted.

In conclusion, social cohesion is the connectedness and solidarity among community members, defined by shared values, trust, and mutual support. Social cohesion involves a sense of belonging, collaboration, and the recognition of differences and interdependence. Achieving social cohesion involves fostering collective efficacy, and social cohesion can thrive through both weak and strong ties, and in diverse communities through both personal interactions and institutional mechanisms.

Examining the Impact of Social Cohesion on Perceived Safety: Insights from Social Disorganization and Informal Social Control Theories

Two theories can be applied to examine the differences between the effects of a low and a high degree of social cohesion on perceived safety.

First, social disorganization theory examines how the social environment and neighborhood disorder influence crime and deviance. Neighborhood disorder refers to perceived physical and social factors of neighborhoods that signal the breakdown of social order and control (Gracia, 2014). Due to factors such as poverty, residential instability and ethnic diversity, social bonds can weaken (Warner, 2014). This weakening of social bonds may contribute to social disorder, undermine social control and diminish the supportive network of friendships and family ties essential for feelings of safety (Sampson, 2012). According to disorder models such as the 'Broken Windows Theory' by Wilson & Kelling (1982), neither residents nor external authorities may be able or willing to intervene and maintain social order, thus creating more disorder.

Furthermore, neighborhood disorder can trigger community processes contributing to further social disorganization and decline. For instance, disorder may make residents believe that informal social control is lacking, and as a result makes them less inclined to trust neighbors (Bjornstrom & Ralston, 2014). A general sense of fear, insecurity and generated mistrust may lead residents to invest less or withdraw from community life, reducing interactions and interconnectedness. Feelings of unsafety may result in mistrust of others, which then forms a barrier to social interactions among others and the creation of social cohesion (Ruijsbroek, Droomers, Groenewegen, Hardyns & Stronks, 2015). Thus, according to social disorganization theory, social disorder can reduce feelings of safety by breaking down social cohesion, social order

and informal social control, which are essential for feelings of safety. This reduction further diminishes feelings of safety due to the breakdown of supportive networks and social control (Sampson, 2012).

Second, informal social control theory offers a framework for examining the effect of a high degree of social cohesion on perceived safety. Research has shown that socially cohesive neighborhoods create the best environment for the realization of informal social control (Sampson et al., 1997). Informal social control refers to behaviors by residents aimed at controlling inappropriate public behavior and preventing conditions conducive to crime (Warner, 2014). As opposed to formal sources of social control represented by the criminal justice system and legal sanctions, informal social control relies on social institutions such as one's family, school, workplace, friends, peers and neighbors (Britt & Roque, 2015). Furthermore, the exercise of informal social control depends on shared expectations and neighborhood social ties.

Shared expectations among residents establish common norms, while social ties motivate residents to act when problems arise (Wickes, Hipp, Sargeant & Mazerolle, 2016). These common norms encourage conformity to positive behaviors due to the influence of others' expectations (Van Tubergen, 2020). When the common norm in a neighborhood is to exhibit pro-social behavior, such as engaging in informal social control, residents are likely to conform to this norm. Consequently, shared expectations, norms and solidarity can motivate residents to act as a guardian in their neighborhood and, either by just their physical presence or by actively intervening, prevent crime or increase other residents' perceived safety (Reynald, 2019). Moreover, social ties and interactions among residents may encourage residents to act as guardian in their neighborhood (Reynald, 2019). Indeed, Wickes et al. (2016) found that residents with strong ties are more likely to engage in public informal social control than individuals lacking social ties. Additionally, strong social ties themselves have also been found to be a strong predictor of feelings of safety (Skogan, 1986).

Although informal social control is primarily used to describe how residents work together to prevent crime in their neighborhood, the basic mechanisms behind informal social control can also be applied to safety perceptions. In this regard, examples of informal social control at the neighborhood level are the monitoring of youth, suspicious sounds and activities (Skogan, 1986). These examples are characterized by a willingness to intervene for the common good, and therefore are dependent on solidarity and trust among residents (Sampson et al., 1997). Without

trust, residents may not feel motivated to engage in activities that regulate behavior (Sampson, 2012; Sampson et al., 1997). Moreover, Ziersch et al. (2007) found that connections with and trust in neighbors are associated with increased feelings of safety. Additionally, Skogan (1986) argued that people feel less safe in unsupervised locations where no one would intervene if necessary, and that fear seems reduced by the perceived availability of social support by, for instance, neighbors.

In summary, in socially cohesive neighborhoods in which repeated interactions among residents occur, shared norms are clear and residents trust one another, individuals are more likely to show pro-social behavior such as informal social control, and intervene when problems arise (Sampson et al., 1997). Thus, in neighborhoods characterized by high levels of social cohesion and consequently, high levels of informal social control, residents may feel safer.

Some studies contradict the argumentation that social cohesion may improve perceived safety. For instance, in dangerous or high-crime neighborhoods, strong social ties may connect residents to violence and victimization, and thereby threaten their safety perception (Zuberi, 2018). However, contrary to his initial argumentation, Zuberi (2018) found that, in dangerous neighborhoods, social ties can both protect or tie youth to violence and victimization. As this study was only conducted in a dangerous neighborhood and among adolescents, it remains unclear whether the same mechanism applies to non-dangerous neighborhoods and other age groups.

The social cohesion-safety perception hypothesis (H1)

Drawing from the previous analysis of social cohesion, social disorganization theory and informal social control theory, the social cohesion-safety perception hypothesis was derived: 'Individuals who perceive higher levels of neighborhood social cohesion are more likely to report higher levels of perceived safety.' Figure 1 displays this relationship with arrow 'A'.

Gender Disparities in Safety Perceptions

Besides the difference in perceived safety between men and women, variations persist in their fears in relation to public space. For instance, while men tend to fear groups of unknown men in public space, women are more fearful of encountering single men (Yavuz & Welch, 2010). This difference is mainly attributed to gendered concerns about women's susceptibility to harassment or (sexual) violence, including staring, groping, stalking and assault. This is said to contribute to women feeling less safe in public than men, regardless of crime rates (Navarette-Hernandez et al., 2021).

Moreover, research by Austin et al. (2002) indicates that men's concerns regarding safety often revolve around women's well-being, while women express more worry about the safety of children. These findings imply gender disparities in safety perceptions, shaped by interconnected processes.

Gender socialization is the process by which individuals develop and learn to 'do' gender through internalizing and enacting gender norms and roles by interacting with key agents of socialization, such as their family, social network and other social institutions (Balvin, 2017). Individuals are exposed to gender-appropriate messages from birth through adulthood and in many contexts, including learning about fear and safety (Rader & Haynes, 2011). Additionally, scholars argue that, in addition to key agents of socialization, men and women learn gender-specific fear of crime messages through the media.

While gender-stereotypical norms may vary across cultures and countries, a global trend persists. Boys are typically encouraged to be wild and strong, assuming roles of protection and provision (Balvin, 2017), leading men to believe they can fight off a potential attack (Rader & Haynes, 2011). Concerning emotions, men are generally taught to suppress feelings, including fear (Navarette-Hernandez et al., 2021), and that fear demonstrates weakness (Rader & Haynes, 2011). These beliefs may lead to a tendency for men to minimize their fear and risk of victimization (Navarette-Hernandez et al., 2021). Some scholars researching gender differences in fear even argue that men are inherently not less fearful than women, but that men simply underreport or suppress their fears in self-report surveys due to societal expectations about gender roles (Sutton & Farrall, 2004) This is bias called 'the social desirability bias'.

On the contrary, girls are often encouraged to engage in domestic tasks and undertake caregiving responsibilities, assuming a nurturing role (Balvin, 2017). Women are taught that, regardless of their physical size, they may be less likely than men to be able to fight off a potential attack (Rader & Haynes, 2011). Furthermore, as opposed to men, women are encouraged to express their emotions (Navarette-Hernandez et al., 2021), and that it is natural to feel fear in response to situations where they might become victims (Rader & Haynes, 2011). Negative emotions, such as feelings of vulnerability, fear and anxiety, are generally reported more by girls and women than by boys and men (Brody & Hall, 2010). Despite some shifts towards less stereotypical and more gender-neutral norms, many cultures still maintain these traditional masculine and feminine stereotypes and norms (Balvin, 2017).

Booth, Farrell & Varano (2008) demonstrated that parents often impose stricter protective measures on daughters, influencing their travel behavior from a young age. Conversely, boys are frequently allowed more freedom and encouraged to try new experiences (Booth et al., 2008). Aligning with these findings, Logan & Walker (2021) argue that women believe they are more vulnerable to violence and that they need men for their protection. This phenomenon, known as 'the vulnerability hypothesis', suggests that fear of crime stems from how an individual perceives their vulnerability and likelihood of becoming a victim (Yavuz & Welch, 2010).

In their research on the impact of urban design interventions on people's perception of safety in the public space, Navarette-Hernandez et al. (2021) use gender norms to illustrate gender inequality concerning safety in the public space. The authors' main argument is that women are disproportionately responsible for caring and domestic duties, and are overrepresented in part-time jobs, resulting in more complex daily movement patterns and an increased amount of time spent in the public space as opposed to men. As women have less access to private cars, they are more likely to walk or take public transport and are more likely to be exposed to strangers than men. Uteng, Singh, & Lam (2019) support this argument and note that women and men have different travel patterns in a way that women have complex travel needs as managers of households, taking care of children and the elderly, and working to earn money. Consequently, as women have limited access to private modes of transport that can provide them with the personal and safe space they desire, they rely on public transport and walking, contributing to a lower level of safety in the public space among women (Uteng et al., 2019).

Women are socialized to express their emotions and believe they are more vulnerable to violence. Additionally, women spend more time in public space as opposed to men due to their more complex daily movement patterns. Therefore, women are likely to perceive risk more often and show greater sensitivity to it because of their perceived physical and social vulnerability and their increase exposure to risks. Their heightened awareness may contribute to a lower sense of safety among women compared to men. Conversely, men are either explicitly or implicitly taught to suppress fears and vulnerability and believe their physical strength can prevent harm. Compared to women, men spend less time in public space. Therefore, men may have a greater tendency to neutralize fear and the risk of victimization as opposed to women, resulting in higher perceived safety among men (Yavuz & Welch, 2010).

The gendered safety perception hypothesis (H2a)

Drawing from the previous analysis of gender differences in perceived safety, the gendered safety perception hypothesis was derived: 'Women are more likely to perceive lower levels of perceived safety than men.' Figure 1 displays this relationship with arrow 'B'.

Gendered Perspectives on Neighborhood Social Cohesion and Perceived Safety: Exploring Socialization Effects

Based on research on gender socialization and gender norms in relation to safety concerns, it is likely that gender may moderate the relationship between neighborhood social cohesion and perceived safety. Men generally express fewer safety concerns than women and are less fearful because they feel in control and feel like they can take care of themselves (Navarette-Hernandez et al., 2021). Therefore, men may prioritize other factors in ensuring their safety instead of neighborhood social cohesion, just as men are concerned about other factors in the public space as opposed to women.

Gender socialization may account for men's feelings of being in control, as men are generally socialized to be autonomous and strong, and to focus on values such as individuality, rationality, impersonality, fairness and rules (Balvin, 2017; Cosse, 1992). Men are more likely objects of formal authoritative control (Hagan, Hewitt, & Alwin, 1979), and as men's emphasis generally lies on traits such as individuality, rationality, impersonality and rules (Huebner & Betts, 2002), it would be likely that neighborhood social dynamics such as interconnectedness, solidarity and trust among residents contribute less to the effect of neighborhood social cohesion on perceived safety for men.

On the contrary, women may perceive themselves as more vulnerable to violence and therefore express more safety concerns than men (Navarette-Hernandez et al., 2021). As women are socialized to express their emotions, show empathy and to take care of others, this may explain why women place greater importance on their social networks, as women generally have a strong emphasis on (interpersonal)relationships with others (Huebner & Betts, 2002). Therefore, women may rely more on their supportive social networks and cohesive communities for protection and support than men. Indeed, Hagan et al. (1979) found that women are more likely objects of informal control, as they are more likely to view informal social control as a factor that enhances safety than men (Zuberi, 2018). Thus, for women, it is more likely that social dynamics such as

neighborhood social cohesion act as a form of informal social control and strengthen the relationship between neighborhood social cohesion and perceived safety than it is for men.

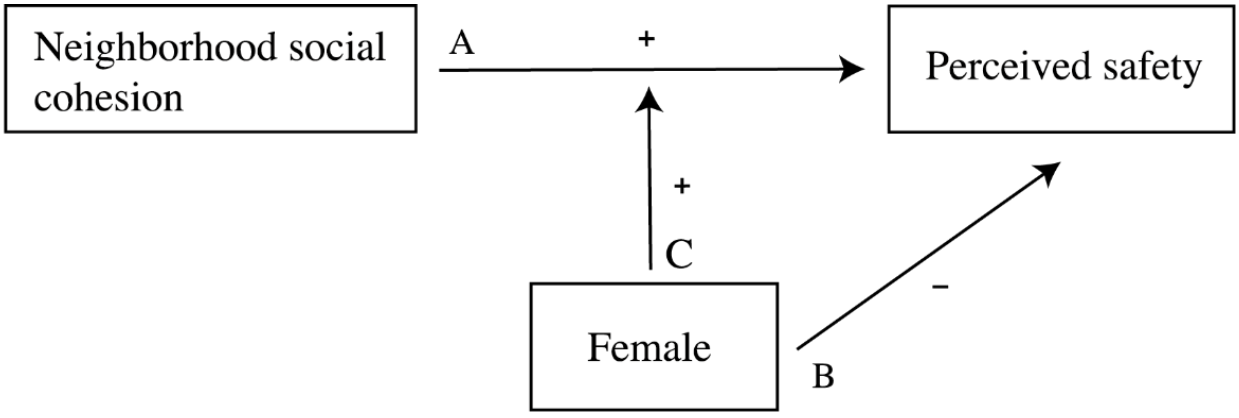
While the previous argumentation about gender differences is rooted in the examination of traditional gender norms and socialization processes, it is important to recognize the evolving nature of gender dynamics and the diversity of gender experiences. This analysis does not fully encompass non-traditional gender norms or the ongoing shifts toward gender equality within different cultural contexts. Acknowledging this, it is essential to approach discussions on gender and safety perceptions with an understanding of the complexity and diversity of gender identities and experiences.

The gendered neighborhood safety-social cohesion hypothesis (H2b)

Drawing from the previous analysis of gender socialization and gender norms in relation to neighborhood social cohesion, the gendered neighborhood safety perception hypothesis was derived: 'Gender moderates the relationship between perceived neighborhood social cohesion and perceived safety, such that the association is stronger for women compared to men.' Figure 1 displays this relationship with arrow 'C'.

Figure 1

The expected relationships and their directions



Data and methodology

Data and selection

For this study, data from the Longitudinal Internet Studies for the Social Sciences (LISS) panel are utilized. The LISS panel is managed by the non-profit research institute Centerdata (Tilburg University, The Netherlands) and is a representative sample of Dutch individuals who participate in monthly internet surveys. The panel is based on a true probability sample of households, drawn from the population register by Statistics Netherlands (Mulder, 2023).

The LISS panel contains various types of studies (longitudinal, single wave) and thus, merging datasets was required. The background variables dataset containing socioeconomic and demographic information from July 2020 was merged with the neighborhood perceptions dataset from July 2020 (response rate 79,4%). Initially, the background variable dataset contained 11.040 respondents. However, as the datasets were merged and fewer respondents participated in the neighborhood perception single wave study, after conducting a listwise deletion the final sample consisted of 2532 respondents (N=2532).

Operationalization

Dependent variable: perceived safety

To create the dependent variable, two items assessing the respondent's safety perception in their neighborhood are used: "How safe do you feel in your neighborhood when you walk alone in your neighborhood during the day?" and "How safe do you feel in your neighborhood when you walk alone in your neighborhood during the night?" Respondents rated these questions 1 (very unsafe), 2 (a bit unsafe), 3 (a bit safe) or, 4 (very safe).

While using two items to measure a construct has been seen as problematic (Eisinga, Grotenhuis, & Pelzer, 2013), this study relies on a pre-existing dataset in which only these items assessed the respondent's safety perception. Instead of using Cronbach's alpha, a split-half reliability analysis was conducted, yielding a Spearman-Brown coefficient of .651. This indicates moderate reliability.

Following the reliability analysis, a scale score for perceived safety was computed as the mean of these items, with scores ranging from 1 (indicating low perceived safety) to 4 (indicating high perceived safety).

Independent variable: neighborhood social cohesion

To create the independent variable, five measures assessing concepts related to interconnectedness, solidarity and trust within the respondent's neighborhood are used: "The people in this neighborhood help each other", "You can trust people in this neighborhood", "People in this neighborhood share the same values", "People hardly know each other in this neighborhood" and "In this neighborhood people interact in a pleasant way". Respondents rated these items on a scale from 1 (indicating 'completely disagree') to 5 (indicating 'completely agree').

A reliability analysis was then conducted for the five measures, yielding a Cronbach's alpha of .854, indicating good reliability. The item stating the people in the neighborhood hardly know each other was recoded to ensure all items measure neighborhood social cohesion in the same direction. Then, the scale score for neighborhood social cohesion was computed as the mean of these five items, with scores ranging from 1 (indicating very low neighborhood social cohesion) to 5 (indicating very high neighborhood social cohesion).

Moderator: gender

The original dataset included a variable where 'male' was represented by the value 1, and 'female' was represented by the value 2. In this study, the main focus regarding perceived safety is on women, as they tend to experience lower levels of perceived safety compared to men (e.g., Logan & Walker, 2021; Navarette-Hernandez et al., 2021; Yavuz & Welch, 2010). Thus, a dummy variable was created, and the original values were recoded. The reference group, males, was recoded as '0', while the comparison group, females, was recoded as '1'.

Control variable: age groups

Research on the effect of age on perceived safety generally reports that elder individuals exhibit higher levels of fear (Allik & Kearns, 2016; Skogan, 1986; Ziersch et al., 2007). To control for the effect of age, a variable was computed by subtracting the respondent's year of birth from the year 2020. To compare the effects between age groups, a separate variable for age groups was

computed, where ages 19-25 were assigned ‘0’, ages 26-65 were assigned ‘1’, and ages 66-95 were assigned ‘2’. These three age groups correspond to the age groups used by the Dutch Central Office of Statistics, which labels the age group aged 0-25 as ‘youth’, ages 26-65 as ‘adults’ and ages 66 and over ‘elderly’ (CBS, 2024a; CBS, 2024b).

Finally, three dummy variables were created to represent these age groups. For instance, youth was computed and initially set to ‘0’ by default. The value ‘0’ was assigned ‘no’, and the value ‘1’ was assigned ‘yes’. Subsequently, a condition-based assignment was employed to adjust the values of ‘youth’ based on the values of ‘age groups’. Thus, for the dummy variables a score of ‘0’ indicates individuals who do not belong to the specified age groups, and ‘1’ represents individuals falling within the specified age group.

Control variable: migration background

Research has found that ethnic minorities tend to report lower levels of perceived safety (De Jesus, Puleo, Shelton, & Emmons, 2010; Ziersch et al., 2007). Therefore, to be able to control for having a migration background, a control variable was created. The original variable measured origin using the following categories: ‘Dutch’, ‘First generation foreign, Western background’, ‘First generation foreign, non-western background’, ‘Second generation foreign, Western background’, ‘Second generation foreign, non-western background’ and ‘Origin unknown or part of the information unknown’. A dummy variable was computed, where ‘Origin unknown or part of the information unknown’ was coded as ‘missing’, ‘Dutch’ was coded as ‘0’, and the remaining options were coded as ‘1’.

Control variable: education level

Research indicates that education level affects perceived safety, as people who completed some kind of education are significantly more likely to report higher levels of safety (De Jesus et al., 2010). To control for the potential effect of education level, a variable to measure the respondent’s education level was computed. The original variable measuring education level used the following categories: primary school, vmbo (intermediate secondary), havo/vwo (higher secondary education/preparatory university education), mbo (intermediate vocational education), hbo (higher vocational education), wo (university), other, not yet completed any education and not (yet) started any education. The options ‘not yet completed any education’ and ‘not (yet) started any education’

were set to 0 and all other options were assigned 1 through 6. This categorization is in line with the ISCED categorization, an international classification for education programs (Eurostat Statistics Explained, 2023). The scale score for education levels ranges from 0 (respondent did not yet complete or start an education) through 6 (respondent has university education level).

Control variables: social and physical incivilities

Research (Austin et al., 2002; LaGrange, Ferraro, & Suspancic, 1992; Yavuz & Welch, 2010) found links between physical and social incivilities, safety perceptions and fear. Sampson (2012) distinguishes between social disorder, which involves threatening public behavior, and physical disorder, which involves visible signs of neglect. Therefore, this research will control for both types of incivilities.

In the LISS Panel, respondents were asked how often the following occurs in their neighborhood: litter or waste next to waste containers, dog poop, broken bicycles, nuisance caused by young people hanging around, nuisance caused by older people hanging around, noise pollution, fights or brawls, the smell of marijuana, people who drink alcohol on the street, people who use drugs, destruction or vandalism and poorly maintained front gardens or pieces of greenery. Respondents rated the options on a scale from 1 (indicating 'very often') to 4 (indicating 'never'). To facilitate interpretation, all items were recoded such that a score of 1 represented minimal incivilities, while a score of 4 represented a high level of incivilities.

A reliability analysis was conducted for the items related to physical incivilities (waste, dog poop, broken bicycles, destruction or vandalism, and poorly maintained front gardens or greenery), resulting in a Cronbach's alpha of .670. This indicates moderate reliability. The scale score for physical incivilities was computed as the mean of these five items, with scores ranging from 1 (indicating few physical incivilities experienced by the respondent) to 4 (indicating frequent experience of physical incivilities).

Subsequently, a second reliability analysis was conducted for the items indicating social incivilities (nuisances caused by young people hanging around, older people hanging around, noise pollution, fights or brawls, the smell of marijuana, people drinking alcohol on the street, and people using drugs), resulting in a Cronbach's alpha of .804. This indicates good reliability. The scale score for social incivilities was computed as the mean of these items, with scores ranging from 1

(indicating few social incivilities experienced by the respondent) to 4 (indicating frequent experience of social incivilities).

Control variable: neighborhood economic status

Research has shown that in lower economic status neighborhoods, a lack of resources may hinder the development of social cohesion, leading to a decline in social cohesion (Tolsma, Van der Meer, & Gesthuizen, 2009). This decline can increase fear, creating a vicious cycle that further erodes social cohesion (e.g., Markowitz, Bellair, Liska, & Liu, 2001; Ziersch et al., 2007). Within the survey, two items assessed the economic status of the respondent's neighborhood: "What do you estimate, what percentage of the residents of your neighborhood live in social housing?" and "What do you estimate, what percentage of the residents of your neighborhood struggle to make ends meet from their monthly income?" A reliability analysis yielded a Spearman-Brown coefficient of .770, indicating moderate to good reliability. The scale score for neighborhood economic status was then computed as the mean of these items, with scores ranging from 0 (indicating low neighborhood economic status) to 10 (indicating high neighborhood economic status).

Analytical strategy

To examine the impact of neighborhood social cohesion on perceived safety and how gender may moderate this relationship, one bivariate and three multivariate OLS regression analyses will be conducted using IBM SPSS Software version 29.

Model 1 will involve a bivariate regression analysis to examine the direct effect of neighborhood social cohesion on perceived safety. This relationship is displayed in Figure 1 with arrow 'A'. In Model 2, a multivariate regression analysis will be conducted by including all the control variables to address potential confounding factors, and the to assess whether men and women perceive safety differently. Figure 1 illustrates this relationship with arrow 'B'. Model 3 will incorporate the independent variable (neighborhood social cohesion), the dependent variable (perceived safety), all control variables and an interaction effect between neighborhood social cohesion and gender to examine gender as a moderator of the relationship. Finally, Model 4 will specifically test the interaction term between neighborhood social cohesion and gender, excluding

the control variables. The relationships examined by Model 3 and Model 4 are displayed in Figure 1 with arrow 'C'.

It is important to note that the data for the independent variable 'perceived safety' are highly skewed. As displayed in Figure 2, among both men and women, most respondents indicate feeling either a bit safe or very safe. Thus, the normality assumption is violated. Therefore, to test the robustness and reliability of this study's results, two sensitivity analyses will be performed.
The first sensitivity analysis will test all four models separately for perceived safety during the day- and nighttime. For this purpose, the aforementioned bivariate and multivariate analyses will be run with safety perception during the daytime and safety perception during the nighttime serving as the independent variables.

The second sensitivity analysis will also employ the four models for safety perception during the day- and nighttime separately, but for this analysis dummy variables will be used for the day- and nighttime. In their study using the same items to measure perceptions of neighborhood safety, De Jesus et al. (2010) argue that respondents only feel safe when choosing the 'safe' option. Thus, for the dummy variable for the second sensitivity analysis, 'very unsafe', 'a bit unsafe' and 'a bit safe' were assigned '1' (unsafe) and 'very safe' was assigned '0' (safe). For the second analysis it is important to note that, normally, one cannot perform Ordinary Least Square analyses with a nominal variable serving as the dependent variable. However, as this analysis only serves the purpose of a sensitivity analysis, the potential biases introduced by the nominal dependent variable are less concerning. The goal of these analyses is to determine whether the results are consistent, providing additional support for the study's findings.

This analytical approach allows us to systematically evaluate how neighborhood social cohesion impacts perceived safety, accounting for potential gender differences and the moderating role of gender in this relationship.

Descriptive statistics

Table 1 presents the means, standard deviations and ranges for all variables. The respondents' average score on perceived safety (M=3.739) (min = 1, max = 4) suggests a generally high perception of safety. Similarly, the average score on neighborhood social cohesion (M=3.575) (min = 1, max = 5) indicates that respondents perceive social cohesion in their neighborhood as moderate to relatively high.

The proportion of women (53%) slightly exceeded that of men (47%) (min = 0, max = 1). The mean of migration background (M=.165) (min = 0, max = 1) suggests that about 83.6% of the respondents have a Dutch background, while 16.4% have a migration background. Regarding education level, the mean score (M=4.071) (min = 0, max = 6) indicates that the respondents have a moderate to high education level. Among the respondents, the largest proportion was adults (60.9%), followed by elderly (35.4%) and youth (3.5%).

In terms of incivilities, there is a noticeable difference between social incivilities and physical incivilities. Respondents reported experiencing more physical incivilities (M=1.832) (min = 1, max = 4) than social incivilities (M=1.461) (min = 1, max = 4). Lastly, the average neighborhood economic status (M=7.549) (min = 0, max = 10) is moderate to relatively high, suggesting that the sampled neighborhoods generally exhibit favorable economic conditions.

Table 1

Descriptive statistics of the dependent variable, the independent variable and the control variables

	M	S.D.	Min	Max
Neighborhood social cohesion	3.575	.754	1	5
Perceived safety	3.739	.435	1	4
Female	.530		0	1
Migration background	.164		0	1
Education level	4.072	1.443	0	6
Age group				
Youth	.035		0	1
Adults	.609		0	1
Elderly	.354		0	1
Social incivilities	1.461	.411	1	4
Physical incivilities	1.832	.478	1	4
Neighborhood economic status	7.549	2.037	0	10

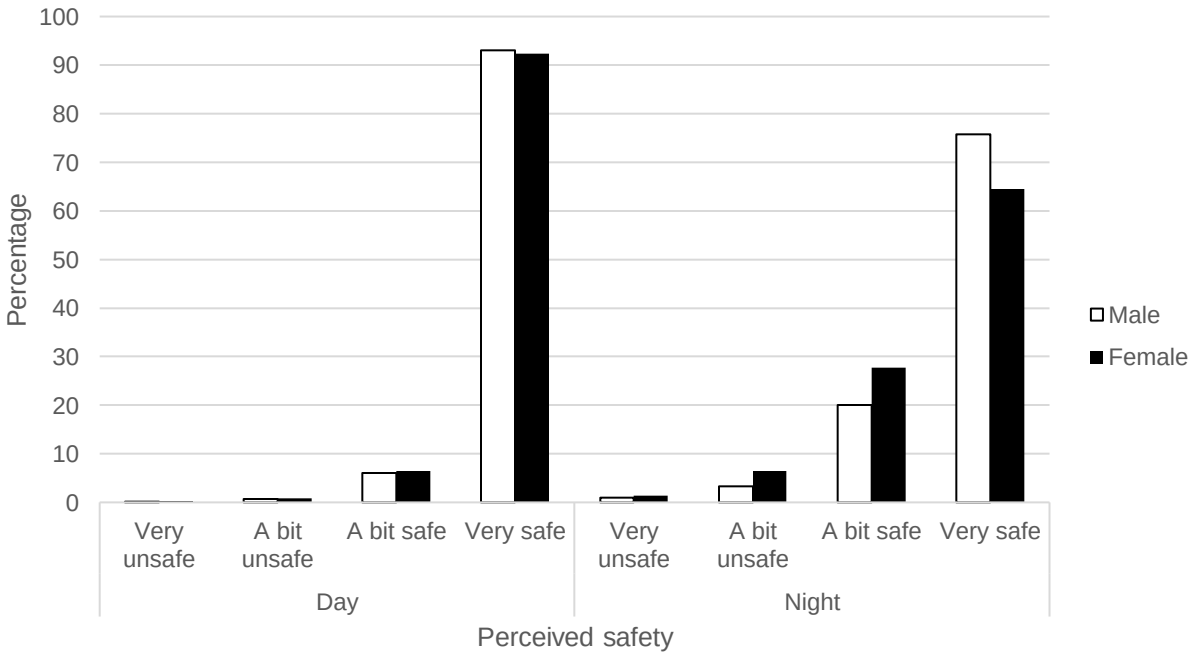
Note. N = 2532

Results

Figure 2 illustrates the respondents' perceived safety, distinguishing between men and women and between day and night. The figure reveals that, during the day, men and women report similar feelings of safety, with 93% of men and 92.4% of women feeling 'very safe' and 6% of both genders feeling 'a bit safe'. However, these perceptions differ at night. While 75.7% of men report feeling 'very safe' during the night, only 64.5% of women share this perception. The data highlight distinct patterns in perceived safety between men and women. Men generally feel safer than women, particularly at night. Furthermore, the disparity in perceived safety between men and women is more pronounced at night than during the day.

Figure 2

Perceived safety of men and women during the day and night



To test the hypotheses, four regression models were run. Table 2 presents the results of the bivariate regression analysis and the two multivariate regression analyses. First, the attention is directed towards Model 1. Model 1 was significant ($R^2 = .136$, $F (1, 2530) = 396.792$, $p < .001$)

and explained 13% of the variance in perceived safety. Neighborhood social cohesion was significant (B = .212, p < .001), demonstrating that neighborhood social cohesion had a positive effect on perceived safety. This finding suggests that respondents who perceive their neighborhood social cohesion to be stronger, tend to express higher levels of perceived safety.

In Model 2, the control variables gender, migration background, education level, age group, social incivilities, physical incivilities and neighborhood economic status are introduced to control for confounding factors that might cause a spurious association. Model 2 was significant (R^2 = .275, F (8, 2522) = 106.291, p < .001) and explained 27% of the variance in perceived safety. Compared to Model 1, Model 2 provided a better fit for the data and explained a larger proportion of the variance in perceived safety (R^2-Change = .139, F-Change = 60.627).

In Model 2, neighborhood social cohesion remained significant (B = .123, p < .001), indicating a robust relationship between neighborhood social cohesion and perceived safety, regardless of the control variables included in Model 2. Model 2 further indicated a negative effect (B = -.133, p < .001) of gender on perceived safety, implying that women perceive their neighborhoods as less safe compared to males, regardless of their perception of neighborhood social cohesion. The finding that women perceive their neighborhood as less safe compared to men, is consistent with other studies (e.g., Logan & Walker, 2021; Navarette-Hernandez et al., 2021; Yavuz & Welch, 2010). Having a migration background was not a significant predictor of perceived safety. Education level, however, was significant (B = .022, p < .001), indicating that perceived safety increases as education level increases. Regarding age groups, there was a significant negative effect of both youth (B = -.127, p < 0.05) and elderly (B = -.053, p < 0.05) on perceived safety. These findings imply that perceived safety is lower among the youth and elderly, which is consistent with other studies (Allik & Kearns, 2016; Reid & Konrad, 2004).

Within Model 2, social incivilities had a negative effect (B = -.220, p < .001) on perceived safety, indicating that nuisances in the neighborhood caused by people such as noise pollution, conflicts or fights or individuals using alcohol or drugs in the public space, lower people's perceived safety. Additionally, the effect of physical incivilities on perceived safety was significant (B = -.043, p < 0.05), implying that physical nuisances in the neighborhood such as waste, dog poop, broken bicycles, destruction or vandalism and poorly maintained front gardens or pieces of greenery have a negative effect on perceived safety. The difference between the effect of social and physical incivilities is in line with research by LaGrange et al. (1992), who concluded that

"unattended people are bigger broken windows than unattended property". Finally, neighborhood economic status had significant effect on perceived safety (B = .040, $p < .001$). This indicates that the economic status of a neighborhood plays a significant role in shaping residents' perceptions of safety, irrespective of neighborhood social cohesion. Residents in economically disadvantaged neighborhoods might perceive lower levels of safety, regardless of how cohesive their neighborhood is.

Based on the findings of Model 2, the data provide support for the social cohesion-safety perception hypothesis (H1), which proposed that individuals who perceive higher levels of neighborhood social cohesion are more likely to report higher levels of perceived safety.

Model 3 included an interaction term between neighborhood social cohesion and gender to examine the effect of gender as a moderator of the relationship between neighborhood social cohesion and perceived safety. Model 3 ($R^2 = .275$, $F(1, 2521) = 95.785$, $p < .001$) was significant and explained 27% of the variance in perceived safety. While the variance of Model 3 is higher than the variance of Model 2 (R^2-Change = .000, F-Change = 1.170), this minor increase suggests that adding the interaction term contributes only marginally to the overall variance explained compared to Model 2. The most important finding from Model 3 is that the interaction term between neighborhood social cohesion and gender was insignificant (B = .031, $p > 0.05$), implying that the effect of neighborhood social cohesion on perceived safety does not vary between men and women.

Finally, Model 4 specifically tested the interaction term between neighborhood social cohesion and gender and excluded the control variables. Model 4 ($R^2 = .164$, $F(3, 2528) = 164.765$, $p < .001$) was significant and explained 16% of the variance in perceived safety. In Model 4, neighborhood social cohesion remained significant, again suggesting that experiencing a high degree of neighborhood social cohesion and has a positive effect on perceived safety. Moreover, the negative effect of being a woman on perceived safety remained significant across all models. Therefore, the data support the gendered safety perception hypothesis (H2a), which suggests that women are more likely to perceive lower levels of perceived safety than men. Similar to Model 3, in Model 4 the interaction term was insignificant. The insignificant relationships between the interaction term and perceived safety in Models 3 and 4 imply that gender does not moderate the relationship between neighborhood social cohesion and perceived safety. Thus, the data do not support the gendered neighborhood safety-social cohesion hypothesis (H2b), which hypothesized

that gender moderates the relationship between perceived neighborhood social cohesion and perceived safety, such that the association is stronger for women compared to men.

Table 2

Regression models predicting perceived safety

	Model 1	Model 2	Model 3	Model 4
Constant	2.980 (.039)	3.413 (.075)	3.456 (.085)	3.082 (.057)
Neighborhood social cohesion	.212** (.011)	.123** (.011)	.111** (.016)	.202** (.016)
Female		-.133** (.015)	-.209** (.072)	-.215** (.077)
Migration background		.010 (.020)	.009 (.020)	
Education level		.022** (.005)	.022** (.005)	
Age group[1]				
Youth		-.127* (.041)	-.125* (.041)	
Elderly		-.053* (.016)	-.053* (.016)	
Social incivilities		-.220** (.024)	-.219** (.024)	
Physical incivilities		-.041* (.020)	-.042 (.020)	
Neighborhood economic status		.038** (.004)	.038** (.004)	
Neighborhood social cohesion * female			.021 (.020)	.019 (.021)
R^2	.136	.275	.275	.164
F	396.792	106.291	95.785	164.765

Note. Standard error between parentheses. * $p < 0.05$. ** $p < .001$.

[1] For the variable age group, adults is used as the reference group

Sensitivity analyses

The results from the first sensitivity analysis are displayed in Table 3 and Table 4 (see Appendix 2) and indicate that the relationship between neighborhood social cohesion and perceived day- and nighttime safety remains significant. Similarly, the absence of a significant interaction effect between neighborhood social cohesion and females remains. In the second sensivitiy analysis, the interaction effect remained insignificant (see Table 5 and Table 6 in Appendix 2). These results indicate the robustness and the reliability of the models' results.

Conclusion and discussion

This study aimed to investigate the impact of neighborhood social cohesion on perceived safety and its potential moderation by gender. Data from the LISS Panel single-wave survey on neighborhood perceptions from July 2020 (N=2532) were used to test the hypotheses.

The most important conclusion of this study is that the effect of neighborhood social cohesion on perceived safety does not significantly differ between males and females. Based on gender socialization theory, it was hypothesized that men and women are differently socialized concerning to how and if social dynamics such as neighborhood social cohesion would contribute to their perception of safety. Specifically, gender socialization theory implies that during their childhood and early adolescence, boys are socialized as fearless men, and girls are socialized as fearful women, and that this difference remains stable.

It could be that this argumentation is over-simplified and deeper or different mechanisms are at play, for instance West & Zimmerman's (1987) classical 'doing gender' interpretation. Doing gender suggests that the relation between gender and cultural processes is more complex than socialization might suggest and that a person's gender is not what one is, but what one does (in interaction with others) throughout the life course. Thus, gender is not fixed and may fluctuate according to one's context (West & Zimmerman, 1987). For instance, the current global shift to more gender egalitarian norms could explain why the traditional gender differences in response to neighborhood social cohesion may not be as pronounced or predictable as previously hypothesized based on gender socialization theory. Individuals of all genders might increasingly interpret and respond to social environments in more similar ways, leading to nuanced or evolving patterns in

perceived safety that transcend traditional gender roles and expectations. Therefore, future research should continue to explore these complexities to better understand the intersection of gender, socialization, and perceived safety within changing contemporary societal contexts.

Additionally, the degree of gender egalitarianism and individualism in the Dutch society might explain that collective factors such as informal social control through neighborhood social cohesion may matter less for women's sense of safety than initially presumed. In The Netherlands, there is a strong emphasis on gender equality, personal autonomy, self-reliance and individual rights. Furthermore, in The Netherlands, women may rely more on their own actions and decisions to ensure their safety rather than relying on societal interventions or communal actions. The combination of a high degree of gender egalitarianism with a high degree of individualism may cause women to interpret and respond to violence, incivilities or crime differently. Women may focus on their personal agency and empowerment in addressing issues, leading to a greater emphasis on individual solutions and initiatives in ensuring personal safety as opposed to women in more collectivist societies. In the Dutch individualistic society, the emphasis on personal freedoms, female empowerment and gender equality may lead women to address their safety in an individualistic manner instead of relying on broader societal or communal interventions and actions aimed at ensuring individuals' safety. Future research could apply the same framework to study countries with collectivist societies or conduct comparative studies between countries with individualistic and collectivist orientations, or among countries with different levels of gender equality, to explore potential differences.

Finally, the social desirability bias may influence how respondents answered questions about their safety. In their research on the social desirability bias, Sutton & Farrall (2005) suggested that women may respond to questions about their perceived safety more truthfully as opposed to men, who may not sincerely report their fear levels but rather provide a more socially desirable answer. In line with their expectations, Sutton & Farrall (2005) found that men produce a pattern of responses in which fear of crime is related to socially desirable responses and that, consequently, men's reported low levels of fear may be irrational. If a similar social desirability bias exists in this study's data, it may be that the data do not provide a true representation of men's and women's perceived safety. Thus, the lack of significance in the interaction effect might be due to the social desirability bias rather than the absence of a true relationship. Future research on perceived safety should be aware of this potential bias, and take steps to mitigate its impact, such

as including a 'lie scale' in surveys, using a bogus pipeline, or using less explicit measures of fear of crime (Sutton & Farrall, 2005).

The second conclusion of this study is that social dynamics at the neighborhood level influence perceived safety. Specifically, this study showed a consistent positive effect of social cohesion at the neighborhood level on perceived safety. Additionally, this study revealed a consistent negative effect of social incivilities on perceived safety. This suggests that residents experiencing more incivilities such as noise pollution, conflicts or fights or individuals using alcohol or drugs in the public space, report lower feelings of perceived safety. However, the variables measuring neighborhood social cohesion and social incivilities were created from various items measuring separate aspects of social cohesion and social incivilities. Therefore, determining which aspects of neighborhood social cohesion and social incivilities contributed to perceived safety falls outside the scope of this study. Thus, further research could separate and measure these distinct concepts within neighborhood social cohesion and social incivilities for a deeper understanding of the mechanisms underlying these social dynamics.

The final conclusion is that, overall, the respondents seem to feel considerably safe in their neighborhood. Both the descriptive statistics displayed in Table 1 and the data Figure 2 suggest high overall levels of safety, among both men and women. However, the gender difference in perceived safety as suggested in the literature (e.g., Logan & Walker, 2021; Navarette-Hernandez et al., 2021; Yavuz & Welch, 2010) is also evident in this study, implying that women have lower perceived safety than men.

Further, it is important to acknowledge the limitations of this study. First, the operationalization of the dependent variable, perceived safety, warrants caution. The measurement of perceived safety relies on questions about the respondents' feelings of safety while walking outside during the day and night in general terms, and thus captures a global perception of neighborhood safety. Elements such as traffic, the green space and other locations within a neighborhood are not measured. Therefore, the operationalization may not have adequately captured perceived safety. However, as this study relied on an existing dataset with set items, it was not possible to operationalize this differently or increase the scale's reliability. This should be kept in mind while interpreting the results of this study.

Second and finally, as this study relied on an existing dataset, it was not possible to control for all concepts found in the literature. For instance, factors such as actual neighborhood crime

rates, victimization rates and respondents' views on gender equality were not included and thus we were unable to control for their effects on perceived safety. This may reduce the validity of this study's findings as they do not consider all factors that could impact perceived safety.

In conclusion, this study found that neighborhood social cohesion positively influenced perceived safety and that women have lower perceived safety than men. Contrary to expectations, there was no moderating effect of gender on the relationship between neighborhood social cohesion and perceived safety. The absence of a moderating effect may be due to oversimplification of gender socialization theory and the current global shift to more gender egalitarian norms, the Dutch individualistic culture or the data not providing a true representation of men's and women's perceived safety due to the social desirability bias. The results emphasize the importance of considering the interconnected relationship between neighborhood social cohesion, personal factors and environmental factors in addressing individuals' perceived safety.

Policy recommendations

Based on the findings of this study, several policy recommendations can be made. These recommendations are aimed at several layers within the government, as well as NGOs and academic institutions.

The first recommendation is aimed at the Dutch government, NGOs and academic institutions. It is advised to fund and conduct more research on the mechanisms behind safety perceptions in the Dutch cultural context. Specifically, research should examine the relationship between the degree of gender egalitarianism and individualism within a society and people's safety perceptions. Additionally, researchers are recommended to investigate the workings of the social desirability bias in the safety context and potentially utilize experimental study designs to rule out self-report biases. As little is known about the influence of these cultural and dynamic concepts, such research could provide deeper understanding of how the Dutch cultural contexts influence safety perceptions, and how the social desirability bias may influence men's and women's responses in self-report surveys. Furthermore, the results will contribute to academic knowledge in these areas and potentially lead to the development of more accurate data for policy making and more effective and targeted safety policies.

The second recommendation is for policymakers designing safety strategies at the government and municipality level. In 2022, for instance, the Dutch central government launched the 'National Program Livability and Safety'. This program aims to increase the livability and safety in twenty focus areas and 19 cities through a collaboration between municipalities and local parties (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2022). However, the program does not distinguish between men's and women's perceptions of safety and is aimed at broader target groups. Based on this study's conclusions, it is recommended that policymakers acknowledge the gender difference in safety perceptions between men and women and consider the nuanced ways all genders perceive and respond to neighborhood dynamics and crime. For instance, by engaging with residents through community meetings or focus groups and considering potential intersectionality, policymakers can ensure their perspective and concerns are considered.

Furthermore, while making plans to increase the livability and safety of specific areas, or while designing urban planning, policymakers should consider the diverse needs and perceptions of different genders, such as ensuring streets are well-lit and providing safe public transportation options. Engaging and consulting with the community and promoting aligned safety strategies that take potential intersectionality into account may result in greater effectiveness and increased support for these interventions among Dutch residents.

Third, to be able to maintain high levels of perceived safety and social cohesion, municipalities should invest in programs targeted at enhancing neighborhood social cohesion. For instance, municipalities could invest in neighborhood events, neighborhood centers, or community gardens to promote interactions and relationships among neighbors. Repeated and increased interactions among neighbors may lead to increased interconnectedness, solidarity, and trust, which in turn should increase residents' perceived safety. However, when investing in programs targeted at enhancing neighborhood social cohesion, the central government and municipalities should keep in mind the cultural context of The Netherlands, which is a rather gender egalitarian and individualistic society. Programs should ensure equal opportunities for all genders to engage. Additionally, initiatives that allow residents to participate voluntarily and contribute based on their interests and preferences could be encouraged.

Furthermore, it is essential for municipalities to tailor these programs to the specific characteristics of different neighborhoods. This includes considering variations in demographics, economic status, and other unique neighborhood features. Even though the reported perceived

safety in this sample it high, there might be specific areas or times with slightly lower scores that could be addressed by municipalities. By tailoring interventions to the neighborhood level, municipalities can more effectively address specific needs and preferences of each community. Another example is for municipalities or policy implementers to contact community leaders and stakeholders to understand specific needs and preferences within these neighborhoods or communities.

Fourth and last, municipalities should invest in tackling social incivilities within their municipality. Integrated approaches at the municipality level, such as the person-oriented approach (Dutch: Persoonsgerichte Aanpak) are aimed at reducing neighborhood social disturbances and improving people's lives by implementing complementary interventions within the safety, care and social domains (Veiligheidscoalitie, 2023). Municipalities could allocate more funds, hours and employees to these integrated approaches to increase their effectiveness at reducing neighborhood social disturbances, increasing individuals' living environment and improving individuals' lives.

These recommendations enable policymakers to work towards creating safer, more cohesive neighborhoods that benefit all residents regardless of gender or other demographic factors.

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Appendices

1. Syntax

```
* Encoding: UTF-8.
DATASET ACTIVATE DataSet1.
GET FILE='/Users/kris/Library/CloudStorage/GoogleDrive-krisekhart@gmail.com/My Drive/Pre-master '+
    'en master UU/Master/Q3:Q4/Thesis/Databestanden/Background variables set.sav'.
DATASET NAME DataSet2.
DATASET ACTIVATE DataSet1.
SORT CASES BY nomem_encr.
DATASET ACTIVATE DataSet2.
SORT CASES BY nomem_encr.
DATASET ACTIVATE DataSet1.
MATCH FILES /FILE=*
  /TABLE='DataSet2'
  /BY nomem_encr.
EXECUTE.

COMPUTE Age=2020-gebjaar.
VARIABLE LABELS Age 'Respondent age'.

RECODE Age (19 thru 25=0) (26 thru 65=1) (66 thru 95=2) (ELSE=SYSMIS) INTO Age_groups.
VARIABLE LABELS  Age_groups 'Age groups'.
EXECUTE.

COMPUTE youth=0.
if Age_groups=0 youth=1.
VALUE LABELS youth 0 'nee' 1 'ja'.
```

```
COMPUTE adults=0.
if Age_groups=1 adults=1.
VALUE LABELS adults 0 'nee' 1 'ja'.

COMPUTE elderly=0.
if Age_groups=2 elderly=1.
VALUE LABELS elderly 0 'nee' 1 'ja'.

RECODE herkomstgroep (0=0) (101=1) (102=1) (201=1) (202=1) (999=SYSMIS) (ELSE=SYSMIS) INTO
   Migration_background.
VARIABLE LABELS  Migration_background 'Respondent migration background'.

RECODE oplzon (8=0) (9=0) (1=1) (2=2) (3=3) (4=4) (5=5) (6=6) (7=SYSMIS) INTO Education_level.
VARIABLE LABELS Eduction_level 'Respondent education level'.

*reliability analysis for perceived safety

RELIABILITY
  /VARIABLES=sr20a006 sr20a007
  /SCALE('ALL VARIABLES') ALL
  /MODEL=SPLIT
  /STATISTICS=SCALE
  /SUMMARY=TOTAL.

COMPUTE Perceived_safety=MEAN(sr20a006,sr20a007).
VARIABLE LABELS Perceived_safety 'Respondent safety perception'.

RECODE sr20a011 (1=5) (2=4) (3=3) (4=2) (5=1) (ELSE=SYSMIS).
```

```
*reliability analysis for neighborhood social cohesion

RELIABILITY
  /VARIABLES=sr20a008 sr20a009 sr20a010 sr20a011 sr20a012
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.

COMPUTE social_cohesion=MEAN(sr20a008,sr20a009,sr20a010,sr20a011,sr20a012).
VARIABLE LABELS social_cohesion 'Respondent perceived neighborhood social cohesion'.

RECODE geslacht (1=0) (2=1) (ELSE=SYSMIS).
VARIABLE LABELS geslacht 'Female'.

*reliability analysis for physical incivilities

RELIABILITY
  /VARIABLES=sr20a047 sr20a048 sr20a049 sr20a050 sr20a051 sr20a052 sr20a053 sr20a054
sr20a055
    sr20a056 sr20a057 sr20a058
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.

RECODE sr20a047 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).
EXECUTE.

RECODE sr20a048 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).
EXECUTE.
```

```
RECODE sr20a049 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).
EXECUTE.

RECODE sr20a057 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).
EXECUTE.

RECODE sr20a058 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).

RELIABILITY
  /VARIABLES=sr20a047 sr20a048 sr20a049 sr20a057 sr20a058
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
EXECUTE.

COMPUTE Physical_incivilities=MEAN(sr20a047,sr20a048,sr20a049,sr20a057,sr20a058).
VARIABLE LABELS Physical_incivilities 'Physical incivilities'.

RECODE sr20a050 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).
EXECUTE.

RECODE sr20a051 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).
EXECUTE.

RECODE sr20a052 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).
EXECUTE.

RECODE sr20a053 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).
EXECUTE.

RECODE sr20a054 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).
```

```
EXECUTE.

RECODE sr20a055 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).
EXECUTE.

RECODE sr20a056 (1=4) (2=3) (3=2) (4=1) (ELSE=SYSMIS).

*reliability analysis for social incivilities

RELIABILITY
  /VARIABLES=sr20a050 sr20a051 sr20a052 sr20a053 sr20a054 sr20a055 sr20a056
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
EXECUTE.

COMPUTE
Social_incivilities=MEAN(sr20a050,sr20a051,sr20a052,sr20a053,sr20a054,sr20a055,sr20a056).
VARIABLE LABELS Social_incivilities 'Social incivilities'.

RECODE sr20a020 (0=10) (1=9) (2=8) (3=7) (4=6) (5=5) (6=4) (7=3) (8=2) (9=1) (10=0)
(ELSE=SYSMIS).

RECODE sr20a021 (0=10) (1=9) (2=8) (3=7) (4=6) (5=5) (6=4) (7=3) (8=2) (9=1) (10=0)
(ELSE=SYSMIS).

*reliability analysis for neighborhood economic status

RELIABILITY
  /VARIABLES=sr20a020 sr20a021
  /SCALE('ALL VARIABLES') ALL
```

```
  /MODEL=SPLIT
  /SUMMARY=TOTAL.

COMPUTE NES=MEAN(sr20a020,sr20a021).
VARIABLE LABELS NES 'Neighborhood economic status'.

COMPUTE NSCxFemale=social_cohesion * geslacht.
VARIABLE LABELS NSCxFemale 'Interaction NSCxFemale'.

*listwise deletion

USE ALL.
COMPUTE filter_$=( ~ MISSING(Perceived_safety) &  ~ MISSING(social_cohesion) &  ~
MISSING(geslacht)
   & ~ MISSING(Age) & ~ MISSING(Migration_background) & ~ MISSING(Education_level)
& ~
   MISSING(Physical_incivilities) & ~ MISSING(Social_incivilities) & ~ MISSING(NES) & ~
   MISSING(NSCxFemale) &  ~ MISSING(Age_groups) &  ~ MISSING(youth) &  ~
MISSING(adults) & ~
   MISSING(elderly)).
VARIABLE LABELS filter_$ ' ~ MISSING(Perceived_safety) & ~ MISSING(social_cohesion)
& ~'+
   'MISSING(geslacht) & ~ MISSING(Age) & ~ MISSING(Migration_background) & ~'+
   'MISSING(Education_level) & ~ MISSING(Physical_incivilities) & ~'+
   'MISSING(Social_incivilities) & ~ M... (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
```

```
DESCRIPTIVES social_cohesion Perceived_safety geslacht Migration_background Education_level youth adults elderly Social_incivilities Physical_incivilities NES.

*Model 1, 2 and 3

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA CHANGE
  /CRITERIA=PIN(.05) POUT(.10) TOLERANCE(.0001)
  /NOORIGIN
  /DEPENDENT Perceived_safety
  /METHOD=ENTER social_cohesion
  /METHOD=ENTER geslacht Migration_background Education_level youth elderly
Social_incivilities Physical_incivilities NES
  /METHOD=ENTER NSCxFemale
  /RESIDUALS HISTOGRAM(ZRESID).

*Model 4

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10) TOLERANCE(.0001)
  /NOORIGIN
  /DEPENDENT Perceived_safety
  /METHOD=ENTER social_cohesion geslacht NSCxFemale.

*Sensitivity analysis 1 of Model 1, 2 and 3 for safety during the daytime

REGRESSION
  /MISSING LISTWISE
```

```
  /STATISTICS COEFF OUTS R ANOVA CHANGE
  /CRITERIA=PIN(.05) POUT(.10) TOLERANCE(.0001)
  /NOORIGIN
  /DEPENDENT sr20a006
  /METHOD=ENTER social_cohesion
  /METHOD=ENTER geslacht Migration_background Education_level youth elderly
Social_incivilities Physical_incivilities NES
  /METHOD=ENTER NSCxFemale
  /RESIDUALS HISTOGRAM(ZRESID).

*Sensitivity analysis 1 of Model 4 for safety during the daytime

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10) TOLERANCE(.0001)
  /NOORIGIN
  /DEPENDENT sr20a006
  /METHOD=ENTER social_cohesion geslacht NSCxFemale.

*Sensitivity analysis 1 of Model 1, 2 and 3 for safety during the nighttime

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA CHANGE
  /CRITERIA=PIN(.05) POUT(.10) TOLERANCE(.0001)
  /NOORIGIN
  /DEPENDENT sr20a007
  /METHOD=ENTER social_cohesion
  /METHOD=ENTER geslacht Migration_background Education_level youth elderly
Social_incivilities Physical_incivilities NES
```

```
  /METHOD=ENTER NSCxFemale
  /RESIDUALS HISTOGRAM(ZRESID).

*Sensitivity analysis 1 of Model 4 for safety during the nighttime

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10) TOLERANCE(.0001)
  /NOORIGIN
  /DEPENDENT sr20a007
  /METHOD=ENTER social_cohesion geslacht NSCxFemale.

RECODE sr20a006 (1=1) (2=1) (3=1) (4=0) (ELSE=SYSMIS) INTO Safety_day.
VARIABLE LABELS  Safety_day 'Safety_day'.
EXECUTE.

RECODE sr20a007 (1=1) (2=1) (3=1) (4=0) (ELSE=SYSMIS) INTO Safety_night.
VARIABLE LABELS  Safety_night 'Safety_night'.
EXECUTE.

*Sensitivity analysis 2 of Model 1, 2 and 3 for nominal variable safety during the daytime

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA CHANGE
  /CRITERIA=PIN(.05) POUT(.10) TOLERANCE(.0001)
  /NOORIGIN
  /DEPENDENT Safety_day
  /METHOD=ENTER social_cohesion
```

```
  /METHOD=ENTER geslacht Migration_background Education_level youth elderly
Social_incivilities Physical_incivilities NES
  /METHOD=ENTER NSCxFemale
  /RESIDUALS HISTOGRAM(ZRESID).

*Sensitivity analysis 2 of Model 4 for nominal variable safety during the daytime

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10) TOLERANCE(.0001)
  /NOORIGIN
  /DEPENDENT Safety_day
  /METHOD=ENTER social_cohesion geslacht NSCxFemale.

*Sensitivity analysis 2 of Model 1, 2 and 3 for nominal variable safety during the nighttime

REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA CHANGE
  /CRITERIA=PIN(.05) POUT(.10) TOLERANCE(.0001)
  /NOORIGIN
  /DEPENDENT Safety_night
  /METHOD=ENTER social_cohesion
  /METHOD=ENTER geslacht Migration_background Education_level youth elderly
Social_incivilities Physical_incivilities NES
  /METHOD=ENTER NSCxFemale
  /RESIDUALS HISTOGRAM(ZRESID).

*Sensitivity analysis 2 of Model 4 for nominal variable safety during the nighttime
```

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10) TOLERANCE(.0001)
  /NOORIGIN
  /DEPENDENT Safety_night
  /METHOD=ENTER social_cohesion geslacht NSCxFemale.
```

2. Sensitivity analyses results

Table 3

Sensitivity analysis 1 for the models predicting perceived safety during the daytime

	Model 1	Model 2	Model 3	Model 4
Constant	3.500 (.031)	3.636 (.062)	3.623 (.070)	3.485
Neighborhood social cohesion	.116** (.008)	.060** (.009)	.063** (.013)	.121** (.013)
Female		.006 (.012)	.028 (.059)	.026 (.062)
Migration background		-.034* (.017)	-.034* (.017)	
Education level		.019** (.004)	.019** (.004)	
Age group[1]				
Youth		-.035 (.033)	-.035 (.033)	
Elderly		.013 (.013)	.013 (.013)	
Social incivilities		-.158** (.020)	-.158** (.020)	
Physical incivilities		.017 (.017)	.017 (.017)	
Neighborhood economic status		.025** (.004)	.025** (.004)	
Neighborhood social cohesion * female			-.006 (.016)	-.009 (.017)
R^2	.071	.148	.148	.071
F	192.038	48.787	43.908	64.129

Note. Standard error between parentheses. * $p < 0.05$. ** $p < .001$.

[1] For the variable age group, adults is used as the reference group

Table 4

Sensitivity analysis 1 for the models predicting perceived safety during the nighttime

	Model 1	Model 2	Model 3	Model 4
Constant	2.460 (.060)	3.191 (.116)	3.289 (.131)	2.703
Neighborhood social cohesion	.309** (.016)	.186** (.017)	.158** (.024)	.283** (.024)
Female		-.271** (.023)	-.446** (.111)	-.455** (.118)
Migration background		.053 (.032)	.052 (.032)	
Education level		.025* (.008)	.025* (.008)	
Age group[1]				
Youth		-.219** (.063)	-.215** (.063)	
Elderly		-.119** (.025)	-.118** (.025)	
Social incivilities		-.281** (.037)	-.280** (.037)	
Physical incivilities		-.099* (.031)	-.101** (.031)	
Neighborhood economic status		.051** (.007)	.051** (.007)	
Neighborhood social cohesion * female			.049 (.030)	.048 (.032)
R^2	.122	.264	.265	.168
F	351.549	100.394	90.669	170.321

Note. Standard error between parentheses. * $p < 0.05$. ** $p < .001$.

[1] For the variable age group, adults is used as the reference group

Table 5

Sensitivity analysis 2 for the models predicting perceived safety during the daytime using the nominal variable

	Model 1	Model 2	Model 3	Model 4
Constant	.394 (.024)	.338 (.049)	.333 (.055)	.390 (.036)
Neighborhood social cohesion	-.090** (.007)	-.050** (.007)	-.049** (.010)	-.089** (.010)
Female		-.004 (.010)	.006 (.047)	.008 (.048)
Migration background		.020 (.013)	.020 (.013)	
Education level		-.014** (.004)	-.014** (.004)	
Age group[1]				
Youth		.042 (.026)	.041 (.026)	
Elderly		-.003 (.011)	-.003 (.011)	
Social incivilities		.098** (.016)	.098** (.016)	
Physical incivilities		-.012 (.013)	-.012 (.013)	
Neighborhood economic status		-.021** (.003)	-.021** (.003)	
Neighborhood social cohesion * female			-.003 (.013)	-.001 (.013)
R^2	.069	.133	.133	.069
F	187.154	43.134	38.810	62.409

Note. Standard error between parentheses. * $p < 0.05$. ** $p < .001$.

[1] For the variable age group, adults is used as the reference group

Table 6

Sensitivity analysis 2 for the models predicting perceived safety during the nighttime using the nominal variable

	Model 1	Model 2	Model 3	Model 4
Constant	1.045 (.044)	.579 (.086)	.580 (.097)	.936
Neighborhood social cohesion	-.195** (.012)	-.125** (.013)	-.125** (.018)	-.195** (.017)
Female		.205** (.017)	.203* (.082)	.211* (.085)
Migration background		-.045* (.023)	-.045* (.023)	
Education level		-.012** (.006)	-.012** (.006)	
Age group[1]				
Youth		.159** (.047)	.159** (.047)	
Elderly		.077** (.023)	.077** (.019)	
Social incivilities		.142** (.027)	.142** (.027)	
Physical incivilities		.077** (.023)	.077** (.023)	
Neighborhood economic status		-.029** (.005)	-.029** (.005)	
Neighborhood social cohesion * female			.000 (.023)	.000 (.023)
R^2	.095	.208	.208	.144
F	265.607	73.707	66.310	142.195

Note. Standard error between parentheses. * $p < 0.05$. ** $p < .001$.

[1] For the variable age group, adults is used as the reference group