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How safe are we? Introducing the multidimensional model of perceived personal safety

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ABSTRACT

Investigations of individual differences in how safe people feel in their social lives have typically used single-item measures or indirect measures. To examine the multifaceted nature of perceived personal safety more comprehensively, we introduce a novel measurement model of perceived personal safety, validated over the course of 8 studies (5 main and 3 supplementary studies; total $N = 4390$). Three distinct factors capturing variance in perceived personal safety emerged, *Feeling of Safety* (i.e., experiencing security in day-to-day life), *Fear of Crime* (i.e., being afraid of victimization), and *Safety Confidence* (i.e., trusting one's own ability to remain safe). Studies 1–3 introduce a newly developed multidimensional model, providing evidence for its face and construct validity. Studies 4 A-4B suggest that the feeling of safety facet specifically relate to better mental health outcomes, even across the span of one year. Study 5 explored the cross-national validity of this model across four different European countries. Contrary to past conceptualizations, perceived personal safety appears to be multidimensional, with different facets affecting our lives in distinct ways.

1. Introduction

Despite the importance of investigations on the topic of personal safety, three conclusions are apparent when one looks at the previous literature. First, amongst the multiple types of safety that have been examined, work on perceived personal safety is particularly infrequent. Second, when psychological examinations of perceived safety have been undertaken, they have not captured the complex and multidimensional nature of this construct. In the present investigation, we focus on accurately measuring the construct of perceived personal safety. By perceived personal safety (PS) we refer to how safe people feel around others. Across five studies, we provide evidence for the multidimensionality of PS, introduce a measure that captures PS above and beyond previous (unidimensional) conceptualizations, and highlight its

importance as an antecedent of important mental health outcomes. We argue for the need to increase scholarship on PS and describe how several sub-fields of psychology could benefit from such research.

1.1. Differentiating between objective and subjective safety

In its most straightforward definition, perceived personal safety is an individual's subjective perceptions of how (un)safe they feel in a particular environment, around others. As with the study of other constructs in psychology, there are multiple ways of examining PS. It is therefore important to distinguish between investigations on subjective (i.e., perceived) safety, in addition to objective aspects of safety. Investigations on objective safety rely on aggregated statistics (e.g., crime rates; FBI, 2021). Although such investigations can be very informative

as they provide us with (hypothetically) unbiased information on how (un)safe an area is, they are at the same time limited in that they don't consider one of the most important aspects of psychology: the human mind.

1.2. Single-item measures of perceived personal safety

Past psychological investigations on perceptions of safety have heavily relied on single-item measures (e.g., Booth et al., 2012; Latham & Clarke, 2013; Ozer & Weinstein, 2004). Single-item measures can be useful in certain cases, such as cross-national surveys where survey length is a limitation (e.g., Syropoulos, 2020). While offering important contributions to our understanding of personal safety and its correlates (e.g., mental health), single-item measures naturally suffer from issues of measurement reliability (e.g., Gosling et al., 2003), construct, content and predictive validity, as well as sensitivity (Diamantopoulos et al., 2012). Oftentimes, this reliance on single-item measures leads to the utilization of proxy measures of PS. One prime example is that of single-item measures of walkability (the tendency to feel safe walking alone at night; "I feel safe walking alone late at night"; e.g., Ballard, 2019; Crabtree & Nsubuga, 2012). Many individuals might feel safe in their lives in general but might choose not to venture out late at night due to situational factors or cultural norms. Thus, this item is not an indicator of PS in any comprehensive sense, particularly given vast individual differences in experiences of walking alone at night.

1.3. The case for the multidimensionality of personal safety

Perhaps the most prominent limitation of measurement approaches relying on single-item measures, is that by their own nature, they assume that PS is a unidimensional construct. In the current investigation we argue against such conceptualizations and offer evidence for a more comprehensive and multidimensional conceptualization of PS. We argue that PS comprises three facets: *Feeling of Safety* (i.e., experiencing security in day-to-day life); *Fear of Crime* (i.e., being afraid of victimization); and *Safety Confidence* (i.e., trusting one's own ability to remain safe). In the sections that follow, we delve into what these facets entail, why they could be influential for individual psychological outcomes, and how extant theoretical and empirical work supports their existence.

1.3.1. Feeling of safety

The first facet of PS is *Feeling of Safety*. This facet captures individual differences in how safe people feel in familiar environments and around people they know in their day-to-day lives. Most people spend a significant amount of time in safe environments (Bureau of Labor Statistics, 2018). Thus, it is imperative to measure perceptions of safety within these familiar environments (e.g., one's residence). From a developmental perspective, attachment theory can also be used to emphasize the importance of safety in familiar environments. Bowlby (1951) investigated the idea that having a safe haven is a primary need that begins in infancy. In particular, Bowlby's investigation of safety/security focused on how the relationship of a parent (primarily mothers) and their child impacts their sense of security. This influential work illustrates that from an early age, how we interact with others and how we act in a specific environment can greatly be influenced through our interaction with others. Thus, even in later stages of life, it is important to assess how safe people feel in environments that are (for the most part) free of threats.

Because of this lack of threat in familiar environments, one would expect individuals to score relatively high on this facet. Should participants not score high however, that would be a clear indication of something being amiss in their daily lives. In light of these theoretical and empirical considerations, we expected that a facet capturing how safe people feel in familiar environments would be one of the factors explaining variability in perceived safety.

Given the lack of a measure capturing subjective perceptions of safety in familiar environments and day-to-day life, it is only possible to speculate and hypothesize about the influence of this facet on key life outcomes. To do so we rely on recent advancements from Social Safety Theory (Slavich, 2020). The three main tenets of this theory are that: humans biologically evolved to foster and prioritize social safety; social safety as an experience is beneficial for health and behavior; social threat is harmful to health and behavior (Slavich, 2020). Consequently, acquiring and maintaining meaningful social bonds is a core motivation of human behavior, while feelings of rejection, isolation, and exclusion from social groups can act as stressors that impact our social safety (Slavich, 2020). Importantly, this theory provides researchers with substantive explanatory power with regards to how biological and physiological aspects of safety influence different contexts of our lives. We argue that the Feeling of Safety facet will play a similar role as social safety, influencing our well-being and behavior in different spheres of our existence.

1.3.2. Fear of crime

A second major facet is an individual's subjective fear of crime. This construct has had a rich scholarly tradition stemming from sociology, criminology and criminal justice (for reviews, see Hart et al., 2022; Henson & Reyns, 2015). Some have defined fear of crime as a negative emotional reaction to a threat induced by crime (Ferraro & LaGrange, 1987; Hale, 1995; van der Wurff et al., 1989), while others consider it risk perception from crime in a particular environment (Chataway & Hart, 2019; Farrall & Gadd, 2004; Jackson, 2004). We consider fear of crime to be a primary facet of perceived safety because, regardless of the context, crime, or fear of being the victim of it, can be a stressor to human safety. An individual's own subjective fear of crime is different from the actual occurrence of crime in a given area. For example, even though violent crime rates have been decreasing in the U.S. since the 1990's (Gramlich, 2016), Americans still report high amounts of fear of crime (Gallup, 2021).

Even though there is an inconsistency in the measurement of fear of crime (e.g., Hauser & Kleck, 2013; also see Hinkle, 2015) there exists a multitude of evidence on the (primarily demographic) antecedents of fear of crime (e.g., Collins, 2016). Further, but to a lesser degree, there is evidence to suggest that fear of crime is associated with key individual differences. For example, research suggests that fear of crime is associated with more state and trait anxiety (Ellis & Renouf, 2017), less life satisfaction (Hanslmaier, 2013), increased depressive symptomatology, more neuroticism, and a decreased sense of control (Klama & Egan, 2011). In the current investigation we sought to both re-examine some of these associations, but importantly we also aimed to incorporate the other two facets of perceived safety as antecedents of key life outcomes.

1.3.3. Safety confidence

The last facet of PS we anticipated to emerge was what we call *Safety Confidence*. This facet relates to an individual's ability to protect themselves and remain safe. We argue that this is an important facet of PS which also has its roots in psychological theory. Specifically, we argue that safety confidence is an individual's perception of their ability to "fight or flee" (Cannon, 1932). We theorize that this is in fact the facet which explains gender differences in perceived safety the most. Such theorizing is in line with research highlighting gender differences in physical strength, with men scoring higher than women (e.g., Miller et al., 1993). We speculate that this facet could also potentially be explained by other psychological phenomena such as a perceived sense of invincibility (e.g., Wickman et al., 2008) or an elevated expression of nerve, which has been defined as a tendency to convey the impression that someone is unafraid to engage in violence (Melde et al., 2019).

We posit that safety confidence is an important facet of PS, with only limited exploratory work arguing for its significance (e.g., Hughes et al., 2003). Recent evidence suggests that perceiving the world as dangerous is a significant motivation behind firearm ownership (Stroebe et al., 2017), such that individuals seek to compensate for their lack of safety by acquiring a firearm (see Buttrick, 2020). Further, those with higher

safety confidence could also possess a greater degree of knowledge of self-defense strategies (e.g., Hughes et al., 2002), which could increase their survival in a threatening situation. Finally, based on previous works in the psychology of violence and aggression (e.g., Björkqvist, 2018) and criminology (e.g., Anderson, 1999), there is ample evidence suggesting that men (on average) are more aggressive and violent than women, which could be an indicator of an increased sense of confidence in their safety. This does not imply that men are more or less afraid of crime (although such a difference has been noted; Chataway & Hart, 2019) or that they feel more or less safe in environments that they are familiar with, but specifically that they might be more confident in their ability to protect themselves. Such theorizing also aligns well with recent findings highlighting that sex differences in physical strength seem to explain differences in trait anxiety (Kerry & Murray, 2021). Based on this theorization, we contend that this facet could potentially account for most of the existing sex differences in perceived safety.

1.4. The current studies

In the current investigation, we had two primary goals: (1) to provide evidence for the multidimensional structure of PS, and (2) to argue for the importance of this multidimensional structure by providing evidence for the association of each facet of PS with key life outcomes. Achieving goal 1 also led to the creation of a reliable and valid measurement of perceived safety, while achieving goal 2 led to both the re-examination and replication of extant findings from criminological research, as well as the testing of novel hypotheses specifically for feeling of safety and safety confidence.

Our investigation spanned five studies. *Study 1* examined the multidimensionality of perceived safety by compiling and factor analyzing previous measures from psychological and criminological investigations produced from an extensive review of the literature. *Study 2* took into consideration laypeople's responses, further improving the factor model and face validity of the construct while also highlighting the associations between the facets of perceived safety and the BIG-5 personality traits. *Study 3* confirmed the multidimensional factor model of the construct and showed that the different facets of perceived safety relate to an individual's locus of control and perceptions of the police with differing patterns. *Studies 4 A-4B* showed evidence for perceived safety's association with positive (life satisfaction, subjective happiness, self-flourishment) and negative (depression, bipolarism, experience of prejudice), life outcomes within three separate university samples and across time. *Study 5* showed evidence for the generalizability and invariance of this multidimensional construct across four different European countries while also replicating the association of its facets with the BIG-5 personality traits. An overview of all the studies, their sample sizes, the type of each sample, and the type of validity each study offers is given in Table 1. For all of the studies presented below, to avoid repetition in our writing, unless otherwise noted, reliability was acceptable (*as* > 0.70). For all of these studies, data analysis was conducted with SAS version 9.4. No formal a-priori power analyses were conducted for determination of our sample size. Analyses were not pre-registered. Data and code files are available on the Open Science Framework at https://osf.io/7pesx/?view_only=6b4da0325db44 8dab5896ef17f0a8b95. All studies received IRB approval from the first author's institution (at the time the study was conducted). Consent was provided at the beginning of each survey.

2. Study 1

For this study, the first author conducted a literature review on studies examining perceived safety. The following terms were searched on PsycINFO and PsycArticles: Safety + Police + Scale (217 results); Perceived Safety (768 results); Safety + Environment + Scale (1310 results); Fear of Crime (825 results). The search was limited to scientific articles published from 1900 to 2018 (January). See Table S1 in the

Table 1
Overview of all studies.

Study number	Sample size	Sample type	Validity type	Sensitivity analysis
Study 1	288	MTurk	Construct (EFA)	$\rho = 0.16$
Study 2	440	MTurk	Construct (EFA), Discriminant, Convergent	$\rho = 0.13$
Study 3	634	MTurk	Construct (CFA), Discriminant, Convergent	$\rho = 0.11$
Study 4A	197	Student	Discriminant	$\rho = 0.20$
Study 4B	890	Student	Discriminant, Convergent	$\rho = 0.09$
Study 5	1644	Cross-National (mixed)	Cross-National, Measurement Invariance	$f = 0.08$

Note. Samples sizes for Studies 1–3 were also based on recommendations for conducting EFA and CFA, suggesting 5–10 participants per item included in the analysis. Sensitivity analyses were performed with G*Power (Faul et al., 2007). The following parameters: $\alpha = 0.05$, power = 0.80, tails = two, were used for Studies 1-4D. For Study 6, where group comparisons were conducted, sensitivity analyses used the following parameters: $\alpha = 0.05$, power = 0.80, number of groups = two (results for three groups for the neighborhood type comparisons in Study 5 are similar).

Supplementary Materials for all articles from which relevant items were retained. From the articles produced by this search, the methods and results sections were reviewed. A total of 50 items were retained after grouping similar items.

2.1. Method

2.1.1. Participants

Three hundred and ten participants were recruited online through Amazon Mechanical Turk (MTurk). We used CloudResearch to operate data collection efforts (Litman et al., 2017) which enabled us to remove potential bots from our sample. After applying exclusion criteria (nationality not US American: $n = 5$, completing the survey in less than five minutes, $n = 15$) and checking for multivariate outliers ($n = 2$), 288 participants remained ($N_{female} = 148$, $N_{White} = 231$, $M_{age} = 37.77$, $SD_{age} = 11.95$).

2.1.2. Materials and procedure

The 50 safety items generated by the literature review were shown to participants in a randomized order. After responding to these items, participants were asked to state three things/factors that make them feel safe and three that make them feel unsafe, in order to generate additional items based on participants' responses (which we later tested in Study 2). Participants then provided demographic information and were debriefed.

2.2. Results

2.2.1. Multidimensionality of perceived personal safety

We conducted Exploratory Factor Analysis (EFA) including the 50 items generated by our literature review. Importantly, in our first EFA analysis, one factor emerged explaining the majority of the variance, with most items loading on this factor. However considering: (a) our a-priori theoretical rationale, (b) the explicit wording of items (i.e., some focused on crime, some focused on measures taken to increase safety, some focused on a general tendency to feel safe) we estimated additional EFAs removing items that either: cross-loaded across factors, failed to load significantly on a single factor (loadings < 0. 40), were very highly correlated with items from the same factor ($r > 0.90$) and/or were

semantically similar (e.g., the following two items: "I feel worried when I am outside at night."; "I feel anxious when I am alone at night.").[1]

In the end, 14 items remained, which produced a three-factor solution: 6 items focusing on fear of crime (matching previous literature), 5 items relevant to safety in everyday environments, and 3 items capturing an individual's ability to protect themselves. The 36 items that were removed as a result of our analyses are displayed in the Supplementary Materials. Two out of the three factors met the eigenvalue-greater-than-one criterion, (Fear of Crime: 5.97, Proportion Variance Explained (PVE) = 0.78, Feeling of Safety: 1.98, PVE = 0.16). The third factor, Safety Confidence did not meet this criterion (eigenvalue = 0.87, PVE = 0.11). Based on the scree-plot and the proportion criterion, however, we retained these factors.

2.3. Discussion

This study provided the first round of evidence supporting our argument for the multidimensionality of PS. Results based on items generated from a literature review showed initial evidence for three hypothesized factors of perceived safety: *fear of crime, feeling of safety,* and *safety confidence.*

3. Study 2

In line with calls for research to increase the validity of psychological measurement models by accounting for public opinion (Gehlbach & Brinkworth, 2011) we coded the open-ended questions from Study 1 (1728 responses, 6 per participant, from 288 participants) asking participants to name three things/factors that made them feel safe/unsafe, thus generating additional items in a bottom-up fashion. These 33 newly generated items were then combined with the original 14 items and factor analyzed in a new sample.

3.1. Method

3.1.1. Participants

Five hundred and six participants were recruited through CloudResearch and received remuneration for their participation in the study. Seventy participants were excluded because they met the following exclusion criteria: completing the survey too fast ($n = 55$), failing the first ($n = 4$) or second ($n = 5$) attention checks, and being multivariate outliers ($n = 2$). The final sample consisted of 440 participants ($N_{female} = 255$, $N_{White} = 343$, $M_{age} = 36.36$, $SD_{age} = 11.72$).

3.1.2. Materials and procedure

A total of 47 items (33 newly generated $+14$ from Study 1) assessing PS were administered. These were followed by the Ten Item Personality Inventory (Gosling et al., 2003). The different subscales of the TIPI had mediocre reliability, which is attributable to their reduced number of items. This was expected, given low reliability in Gosling et al. (2003). Despite this limitation, the TIPI has been utilized extensively (e.g., Klein et al., 2018) as a short tool for assessing different personality traits. Participants were asked to express their agreement/disagreement with each measure on a 1–7 Likert scale.

3.2. Results

3.2.1. Multidimensionality of perceived personal safety

Based on an EFA (principal axis factoring, oblique rotation), the

same factors as in Study 1 emerged (fear of crime, feeling of safety, safety confidence). These factors retained most of the items from Study 1 with some additions from the new pool of items generated from the open-ended responses. This decision was driven by observed cross-loading of items (with loadings ≥0.30) and poor factor loadings on any of the three factors (loadings < . 40). To examine the factor model more closely, we kept 17 items (Table 2) and conducted a second EFA (Table 2). The remaining 17 items loaded significantly onto the three factors (all loadings >0.40). Crucially two items for the feeling of safety facet cross-loaded into the fear of crime facet. We opted to retain these items in future analyses for two reasons: (a) we wanted to re-examine their loadings since these items did not explicitly mention any type of crime in their wording, and (b) because the feeling of safety facet had a smaller number of items, and we strove to have at least 5 items per facet. These factors met the established norms (eigenvalues >1; proportion criterion; scree plot criterion).

Bivariate correlations showed moderate associations between the three facets, showcasing preliminary evidence for discriminant validity, further supporting our hypothesis that PS is multidimensional.

3.2.2. Perceived personal safety and personality

All the facets of PS were significantly correlated with extraversion, emotional stability, and conscientiousness; these correlations were negative for fear of crime (see Table 3). Feeling of safety and safety confidence were also positively correlated with openness to experience, and feeling of safety were positively correlated with agreeableness.[2]

Table 2
Exploratory factor analysis for Study 2.

	Fear of crime	Safety confidence	Feeling of safety
I feel terrified that I am going to be the victim of a crime	0.80		
I feel terrified that I may someday be the victim of a robbery.	0.79		
I am afraid of being physically assaulted.	0.78		
I am afraid of somebody breaking into my home and stealing or damaging things.	0.76		
I feel terrified of gang activity.	0.72		
I am afraid of being threatened by someone.	0.71		
I am afraid of becoming the victim of terrorist-related violence.	0.70		
I have the strength and skills to ward off criminals.		0.90	
If I was attacked at night, I am confident that I would be able to defend myself.		0.88	
I know enough self-defense to protect myself.		0.82	
If I thought somebody was following me, I would confront them.		0.50	
The way I look makes me feel safe.		0.40	
I feel at ease in familiar places.			0.60
Being at home makes me feel protected.			0.56
I feel safe when walking alone during the day.	−0.39		0.47
I generally feel safe.	−0.40		0.41
My family makes me feel secure.			0.41
Proportion Variance Explained	0.69	0.25	0.13

Note: Factor loadings between −0.35 and 0.35 are not displayed.

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[1] Importantly, when evaluating the original 50 items via parallel analysis, utilizing the averages of the squared partial correlations, five factors are recommended. EFAs on these five factors again produce highly consistent results as our original EFA. Parallel analysis on the 14 items that remained after our series of EFAs determined that three factors were optimal.

[2] To evaluate the strength of the observed correlation we utilized the guidelines recommended by Gignac and Szodorai (2016).

Table 3
Correlations between the measures of Study 2.

	Fear of crime	Feeling of safety	Safety confidence	Extraversion	Agreeableness	Conscientiousness	Emotional stability	Openness
Fear of crime	–	−0.43***	−0.31***	−0.11*	−0.09	−0.25***	−0.35***	−0.08
Feeling of safety	−0.43***	–	0.26***	0.10*	0.28***	0.29***	0.34***	0.10*
Safety confidence	−0.31***	0.26***	–	0.26***	0.03	0.15**	0.33***	0.16***

* $p < .05$.
** $p < .01$.
*** $p < .001$.

3.3. Discussion

Study 2 further supported our argument for the multidimensionality of perceived safety, as well as generating a scale for measuring these perceptions. Increased perceptions of safety were associated with an increased tendency to socialize and participate in social gatherings (extraversion). Safer individuals also reported having higher levels of emotional stability and conscientiousness. Where the facets of perceived safety differed was with regard to openness and agreeableness. Feeling of safety and safety confidence (but not fear of crime) were associated with increased willingness to engage in novel experiences (openness). Only feeling of safety was related to increased agreeableness.

4. Study 3

Study 3 confirmed the multidimensional three-factor structure of the 17-item PS measure. It also examined how perceived internal (i.e., locus of control) and external (i.e., the police) forces correlate with levels of safety. We hypothesized that higher levels of PS would be positively associated with an inner locus of control (and negatively associated with an external locus of control), and also that higher levels of PS would be positively associated with increased perceptions of police effectiveness and legitimacy. We also measured social desirability to ensure that subjective reports of perceived safety were not biased.

4.1. Method

4.1.1. Participants

Six hundred and sixty-nine participants were recruited via CloudResearch and received remuneration ($0.45) for their participation in the study. Participants were excluded because they met at least one exclusion criterion: Not being U.S. American ($n = 7$), not passing two attention checks ($n = 23$) and being multivariate outliers ($n = 5$). Our final sample consisted of 634 participants ($N_{female} = 353$, $N_{White} = 520$, $M_{age} = 36.69$, $SD_{age} = 12.09$).

4.1.2. Materials and procedure

The 17-item PS measure from Study 2 was administered. The most commonly used single item measure of safety—"I feel safe when walking alone at night"—was also included to compare scores on this item with our novel multidimensional measure of safety. The Police Legitimacy Scale (Tankebe et al., 2016) and the Levenson Multidimensional Locus of Control Scale (Levenson, 1973) were also presented to establish discriminant validity. Finally, the Short Social Desirability Scale (Crowne & Marlowe, 1960) was included to examine whether answers provided by the respondents were influenced by tendencies to respond in a manner that would be perceived as positive by others. These measures were presented in a random order, followed by demographic questions, on a 1–7 Likert scale.

4.2. Results

4.2.1. Multidimensionality of perceived personal safety

We conducted a Confirmatory Factor Analysis (CFA) to examine the factor model of the PS Scale (Fig. 1). We evaluated model fit based on
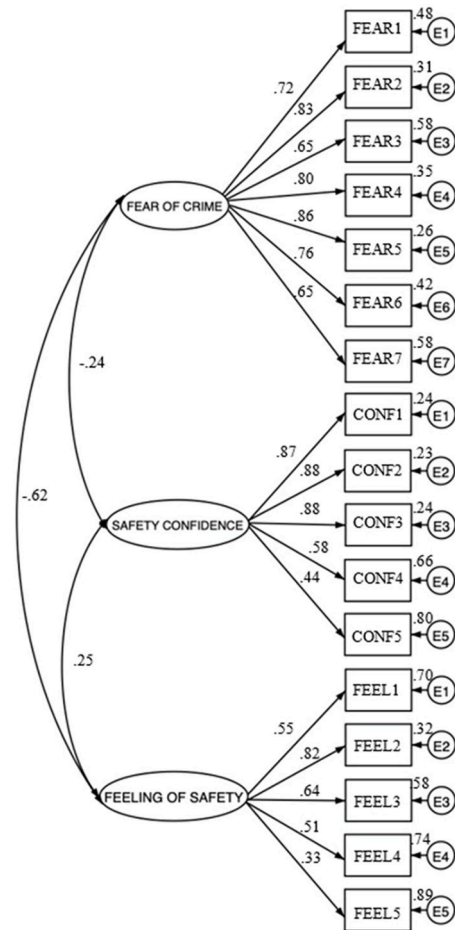

Fig. 1. Factor model of the PS scale for Study 3.
Note: $N = 637$, $\chi^2(115) = 356.33$, $p < .001$, CFI = 0.952, RMSEA = 0.057, SRMR = 0.060.

recommendations suggested by Kline (2016). In detail, these dictate that a non-significant chi square value suggests good fit to the data. We also consider model fit indexes recommended by Kline as evaluation criteria: CFI $\geq$ 0.95, RMSEA $\leq$ 0.08, SRMR $\leq$ 0.08.

The Chi square was significant, $\chi^2(115) = 356.33$, $p < .001$, which could be attributed to high df. However, the fit indexes suggested a good fit to the data: CFI = 0.95, RMSEA = 0.06, and SRMR = 0.06. This three-factor model displayed better fit to the data in comparison to a single factor model, $\chi^2(3) = 223.44$, $p < .001$, supporting our argument for the multidimensionality of perceived safety.

4.2.2. Perceived personal safety and locus of control

All bivariate correlations are presented in Table 4. Fear of crime correlated negatively with an internal locus of control, and positively with an external locus of control. Feeling of safety was positively associated with an internal locus of control and negatively with an external

Table 4
Correlations between the measures of Study 3.

	I feel safe when walking alone at night	Safety Confidence	Feeling of Safety	Fear of Crime
Fear of crime	−0.52***	−0.22***	−0.40***	–
Feeling of safety	0.45***	0.21***	–	−0.40***
Safety confidence	0.30***	–	0.21***	−0.22***
Lawfulness	0.02	0.19***	0.28***	−0.07
Procedural fairness	0.05	0.21***	0.28***	−0.08*
Distributive fairness	0.01	0.21***	0.20***	−0.02
Police legitimacy	0.03	0.21***	0.26***	−0.06
Police effectiveness	0.21***	0.18***	0.31***	−0.15***
Internality	0.19***	0.27***	0.50***	−0.21***
Powerful others	−0.13**	−0.07	−0.28***	0.32***
Chance	−0.08*	−0.04	−0.28***	0.32***
Social desirability	−0.03	−0.10*	−0.06	0.10**

* $p < .05$.
** $p < .01$.
*** $p < .001$.

locus. Safety confidence only positively correlated with an internal locus of control.

4.2.3. Perceived personal safety and perceptions of police legitimacy

Fear of crime was only positively correlated with perceived police effectiveness. Safety confidence and feeling of safety were significantly and positively correlated with both perceived police effectiveness and legitimacy.

4.2.4. Perceived personal safety and social desirability

Social desirability was only weakly correlated with safety confidence and fear of crime. Socially desirable responding appeared to be associated with suppressed rather than increased scores on the PS Scale.

4.2.5. Comparison with single-item measure

All three facets of perceived safety were moderately correlated with the single item used in previous studies: "I feel safe when walking alone at night," providing evidence for the validity of the new measure, but also highlighting that they are not significantly overlapping with the single-item measure. To compare whether the multidimensional measure of perceived safety has better validity (defined through its association with the outcome variables included in the study), we computed several linear regression models. We included each facet of PS and the one-item measure of safety in separate models. Following the guidelines provided by Shrout and Yip-Bannicq (2017), we were able to compare the two regression weights for each outcome variable included in our study (see Table 5). The facets of PS outperformed the one-item measure, except for the case of police effectiveness, where only feeling of safety outperformed the single-item measure.

4.3. Discussion

Study 3 confirmed our hypothesis that PS is multidimensional. Bivariate correlations further supported this argument, by providing a distinct pattern of associations between the three facets of PS and participants' perceptions of the police and of their own locus of control. The multidimensional conceptualization of PS also displayed greater validity relative to previous approaches utilizing a single-item measure.

5. Study 4A

In our next set of studies, we sought to evaluate how each of the facets of PS relate to positive life and mental health outcomes. We expected that feeling of safety would be related to positive life outcomes, more so than fear of crime or an individual's safety confidence, as the degree of safety that individuals experience in their everyday lives should be the most reliable marker of an individual's well-being.

5.1. Method

5.1.1. Participants

Students ($N = 231$) were recruited online from a student pool from a university in the U.S. in exchange for course credit. After applying exclusion criteria (nationality was not U.S. American: $n = 34$) the final sample consisted of 197 participants ($N_{female} = 156$, $N_{White} = 142$; $M_{age} = 20.02$, $SD_{age} = 1.66$).

5.1.2. Materials and procedure

Participants were presented with the 17-item PS measure. The following measures were then used to examine positive life outcomes: (1) Subjective Happiness Scale (4 items: e.g., "Compared with most of my peers, I consider myself… less/more happy", Lyubomirsky & Lepper, 1999); (2) Satisfaction with Life Scale (5 items: e.g., "In most ways my life is close to my ideal", Diener et al., 1985); (3) Flourishing Scale (8 items: e.g., "I lead a purposeful and meaningful life", Diener et al., 2009). All the measures were presented on analog slider scales ranging from 1 to 9 in a randomized order.

5.2. Results

5.2.1. Perceived personal safety and positive life outcomes

Supporting our hypothesis (see Table 6), only feeling of safety was associated with increased positive life outcomes. This relationship held when regressing all three constructs on the three facets of safety while controlling for different demographic variables (gender, income, political beliefs, religiosity, spirituality), with feeling of safety being the strongest predictor in all three cases (R^2 ranging from 0.15 to 0.29; see Supplementary Materials).

6. Discussion

Supporting our hypothesis, our results suggest that individuals who reported feeling subjectively safer in familiar environments in their day-to-day lives also report living happier and more fulfilling lives. This effect remained significant after controlling for demographic variables, further attesting to the importance of subjective perceptions of safety. None of the other facets of safety contribute to this association, suggesting that how safe people feel in familiar environments is potentially more relevant for positive life outcomes.

7. Study 4B

Study 4B investigated whether increased PS would be associated with lower reports of negative life outcomes such as recollection of past negative memories, presence of bipolar personality traits, depression, and perceived discrimination.

7.1. Method

7.1.1. Participants

Students ($N = 1044$) completed a survey at a large public university in the northeastern United States, in exchange for research credit. After applying exclusion criteria (nationality not US American: $n = 85$; not alone when taking the survey: $n = 58$) and checking for multivariate outliers ($n = 11$), 890 students remained ($N_{female} = 712$, $N_{White} = 624$).

Table 5

Comparison of the validity of each of the three facets of the PS with the Single-item measure of safety for the measures of Study 3.

Outcome variable	Comparison for Feeling of Safety		Comparison for Fear of Crime		Comparison for Safety Confidence		R^2 (adjusted)	
	Feeling of Safety	Single-item Measure	Fear of Crime	Single-item Measure	Safety Confidence	Single-item Measure	Perceived Safety all facets	Single-item Measure
Internality	0.55a	0.02b	−0.11a	0.06c	0.15a	0.05c	0.28 (0.28)	0.04 (0.04)
Powerful others	−0.37a	−0.03b	0.29a	0.03b	na	na	0.13 (0.13)	0.02 (0.01)
Chance	−0.39a	0.00b	0.31a	0.07b	na	na	0.14 (0.13)	0.01 (0.01)
Police effectiveness	0.41a	0.09b	−0.05c	0.13a	0.09	0.11	0.11 (0.10)	0.04 (0.04)
Police legitimacy	0.50a	−0.04b	na	na	0.27a	−0.06b	0.10 (0.09)	0.001 (0.001)

Note: Subscripts denote significant differences between the unstandardized regression weight for the specific facet of perceived safety and the one-item measure. Subscripts "a" and "b" depict significant differences at $p < .001$, while "a" and "c" denote differences at $p < .05$. Subscript "a" signifies that the indicated regression weight is the highest one. "na" signifies that not test was conducted as the facet of personal safety was not correlated with the specific outcome variable.

Table 6

Correlations for the measures of Study 4A.

	Feeling of safety	Fear of crime	Safety confidence	I feel safe when walking alone at night
Subjective happiness	0.27*	−0.03	0.07	−0.06
Satisfaction with life	0.36*	−0.15	0.12	−0.01
Self-flourishment	0.48*	−0.05	0.08	0.02

* $p < .001$.

The average age was 19.71, $SD_{age} = 1.40$.

7.1.2. Materials and procedure

The 17-item PS was included. Negative life outcomes were measured with the Negative Memories Questionnaire (20 items measured on a 1–5 scale, "1 = not at all, 5 = extremely", e.g., "In the past month, how much were you bothered by repeated, disturbing dreams of the stressful experience?"; Weathers et al., 2013); the Personality Assessment Inventory–Borderline Personality Disorder (BPD) Features scale (24 items, measured on a 1–4 scale, "1 = false, 4 = very true"; e.g., "My mood can shift quite suddenly", Morey, 1991)[3]; and the Short version of the Depression Anxiety Stress Scale (DASS, 7 items, measured on a scale from 1 to 4, "1 = did not apply to me at all, 4 = applied to me very much, or most of the time"; e.g., "I felt down-hearted and blue"; Lovibond & Lovibond, 1995). We measured experiences of discrimination with the gender and race discrimination (Taylor et al., 1993) scales (5 items per scale, measured on a 1–7 scale, "1 = strongly disagree, 7 = strongly agree", e.g., "I am personally discriminated against because of my gender/race"). The measure of racial discrimination had mediocre reliability ($a = 0.60$).

7.2. Results

7.2.1. Perceived personal safety and negative life outcomes

Bivariate correlations (see Table 7) suggested that feeling of safety and safety confidence scores negatively correlated with depression, borderline personality traits and recollection of negative memories, while fear of crime did so in the opposite direction. When regressing these outcomes on all facets of perceived safety, controlling for gender and political orientation all facets of safety remained significant except

[3] The correlations between the facets of perceived safety and the subscales of the BPD were consistent across all facets of safety (see Supplementary Materials) and thus we only present results for the overall measure of borderline personality.

Table 7

Correlations for the measures of Study 4B.

	Fear of crime	Feeling of safety	Safety confidence
Borderline personality	0.26***	−0.28***	−0.11**
Depression	0.16***	−0.24***	−0.11***
Negative memories recollection	0.27***	−0.29***	−0.07*

* $p < .05$.
** $p < .01$.
*** $p < .001$.

for the association between safety confidence and recollection of negative memories (R^2 ranging from 0.11 to 0.12; see Supplementary Materials).

Separate bivariate correlations for gender (defined here as male and female, given the very small number of participants who reported some other gender identity) and race (white and student of color, given the small percentage of each specific race/ethnicity) were estimated. For female (but not male) students perceived discrimination was significantly negatively associated with every facet of perceived safety (reversely for fear of crime). Further, for students of color (but not white students) increased perceptions of racial discrimination were associated with lower feeling of safety (Table 8).

7.3. Discussion

Our results suggest that when individuals feel unsafe, they are also more likely to feel more depressed, exhibit more borderline personality traits, and recollect more negative memories. Further, the unique association between perceived discrimination for female students and students of color elucidates the importance of incorporating first-person accounts of personal safety as an additional life indicator that is impacted by experiences of discrimination. These findings (along with the results of Study 4 A) were replicated in two additional studies, which

Table 8

Correlations for the facets of PS and perceived discrimination for different social identities.

Social identity	Fear of crime	Feeling of safety	Safety confidence
Female students ($N = 708$)	**0.11***	**−0.20****	**−0.11***
Male students ($N = 174$)	0.08	−0.08	0.07
Students of color ($N = 236$)	0.10	**−0.19***	−0.00
White students ($N = 623$)	0.05	−0.02	**0.15****

* $p < .01$.
** $p < .001$.

are reported in the Supplementary Materials (see Supplementary Studies 1 and 2).

8. Study 5

Our final study examined PS in four additional nations (Germany, Greece, France, Spain). We were also interested in whether PS would be perceived in a similar way across countries, allowing us to make a stronger claim about the generalizability of our findings. The nations included in the investigation were selected because of prior collaborations between the research teams.

8.1. Method

8.1.1. Participants

We conducted our investigation in the following countries: Germany ($N = 153$, 77 % female, $M_{age} = 29.80$, $SD_{age} = 12.46$), Greece ($N = 213$, 67 % female, $M_{age} = 22.58$, $SD_{age} = 4.23$), France ($N = 674$, 56 % female, $M_{age} = 24.53$, $SD_{age} = 6.87$), Spain ($N = 292$, 50 % female, $M_{age} = 35.90$, $SD_{age} = 12.29$), and USA ($N = 312$, 48 % female, $M_{age} = 35.73$, $SD_{age} = 11.33$). An online community sample was recruited in Germany. An online student sample and a Reddit sample were recruited for France and Spain respectively. We collected data via Reddit as it provides a cheap alternative method for recruiting data from international populations (Shatz, 2017). A student sample was recruited for Greece. For the United States, data collection was conducted on MTurk. Every country's sample except Germany's was comprised by two studies, an experimental and a correlational study. The experimental study was part of a separate project examining the effect of immigration movements on perceived safety, which did not yield any significant results by condition. Thus we combined the samples across conditions. Participants who were not citizens of each respective country ($n = 158$), and who were multivariate outliers ($n = 5$) were excluded from analyses.

8.1.2. Materials and procedure

The 17-item PS Scale, the TIPI, and several demographic questions were included. Prior to the commencement of the study the materials were translated and back-translated with help from the research teams from the collaborating universities.

8.2. Results

8.2.1. Perceived personal safety across nations (measurement invariance)

To ensure that any results from our multi-group comparison are not due to differences in the properties of the PS Scale, but rather due to differences between groups, we tested for measurement invariance. In doing so, we were also ensuring whether perceived safety is construed similarly across nations. Measurement invariance is commonly assessed in a series of increasingly complex CFA models. The first (configural invariance) estimates a fully unconstrained model in which factor loadings and intercepts are freely estimated. If this requirement is met, the next model (metric invariance) is specified by estimating a partially constrained model in which factor loadings are constrained to be equal. If metric invariance is achieved, then a final model (scalar invariance) is estimated in which both the factor loadings and intercepts are fixed to be equal across groups.[4]

We started by examining the factor model of the scale (configural invariance). EFAs for each country showed cross-loadings for three items; two from the Feeling of Safety subscale ("My family makes me feel secure" and "Being at home makes me feel protected") and one from the Safety Confidence subscale ("The way I look makes me feel secure"). Excluding these items ensured no significant cross-loadings. We then

formally assessed configural invariance by estimating CFA models. Overall, the fit was acceptable both with and without the three items that cross-loaded significantly. For two countries, the fit was just slightly better with the three items removed (ΔCFI = 0.01) (Table 9).

We then tested for metric invariance by specifying a partially constrained model (i.e., factor loadings fixed to be equal, but intercepts are freely estimated). As a stricter criterion, we also tested for scalar invariance by specifying a fully constrained model (i.e., factor loadings and intercepts are fixed to be equal). Although extant research has used the change in Chi-Square to test for measurement invariance, given that findings have shown that it is sensitive to differences in sample size, we did not use it to evaluate our results (Chen, 2007). Instead, to evaluate our findings, we primarily followed recommendations by Chen (2007). Researchers specify that in unequal sample sizes between groups, a change of ≤ 0.025 in SRMR and a change of ≤ 0.010 in CFI indicate invariance (Cheung & Rensvold, 2002). We performed these analyses both for the full three factor model of the scale, and each individual subscale. These results are presented in Table 10. Overall, we found evidence for configural invariance, as the factor structure of both the 14-item and the 17-item scale presented good fit. Similarly, configural invariance was observed for the individual subscales as well. Support for metric invariance was also found for the 14-item version of the scale. No evidence for scalar invariance was observed.

Cross-National Reliability.

With and without the three items that cross-loaded significantly, reliability was high for every facet, with the exception of the Feeling of Safety subscale. For this measure, reliability ranged from mediocre to acceptable across countries. We suspect that this could be partially attributable to some of the items of these scale being idiomatically phrased (e.g., "I feel at ease in familiar places") (Table 11).

8.2.2. Perceived personal safety and personality across nations

To examine the association between PS and the different personality facets across the four countries traits we conducted bivariate correlations. Results in the European countries primarily replicated the association between every facet of perceived safety and emotional stability. Results in the United States replicated the findings from Study 2 (Table 12).

8.2.3. Gender differences

Similar findings to the results reported in this section were observed in Study S3 in the supplementary materials. In the combined European sample, women scored significantly higher in fear of crime, $F(1330) = 109.57$, $p < .001$, $\eta^2 = 0.076$, and significantly lower in safety confidence: $F(1330) = 84.88$, $p < .001$, $\eta^2 = 0.061$, and significantly lower than men in their feeling of safety: $F(1, 1335) = 12.67$, $p < .001$, $\eta^2 = 0.009$. This effect was both smaller compared to the other facets, and, when examining the countries individually, there was no significant difference for all countries, except for France: $F(1, 673) = 15.69$, $p < .001$, $\eta^2 = 0.023$ (Table 13).

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[4] Importantly, measurement invariance for gender and neighborhood type was also found in Supplementary study 3.

Table 9
Fit indices for the factor model of the PS scale, for Studies 2–5.

Study/sample	SRMR	RMSEA	CFI
1. Study 2	0.06	0.06	0.95
2. Study 3	0.06	0.06	0.95
3. Studies 4 A-4B	0.06	0.09	0.90
4. Study 5: USA	0.05	0.06	0.97
5. Study 5: Germany	0.05	0.07	0.95
6. Study 5: Greece	0.05	0.05	0.97
7. Study 5: France	0.04	0.05	0.97
8. Study 5: Spain	0.05	0.05	0.97

Note: For Study 5, the fit indexes are derived from the model where 3 items were removed to account for their cross-loading.

Table 10
Model fit comparisons for PS between the United States and the Four European countries.

	SRMR	ΔSRMR	CFI	ΔCFI	Decision
Perceived safety (14 items)					
Configural invariance	0.047	–	0.967	–	Accept
Metric invariance	0.064	**0.017**	0.957	**−0.010**	Accept
Scalar invariance	0.101	0.037	0.921	−0.036	Reject
Perceived safety (17 items)					
Configural invariance	0.072	–	0.929	–	Mixed
Metric invariance	0.084	**0.012**	0.916	−0.013	Mixed
Scalar invariance	0.111	0.027	0.878	−0.038	Reject
Fear of crime (7 items)					
Configural invariance	0.024	–	0.984	–	Accept
Metric invariance	0.043	**0.019**	0.982	**−0.002**	Accept
Scalar invariance	0.080	0.037	0.971	−0.011	Reject
Feeling of safety (5 items)					
Configural invariance	0.050	–	0.941	–	Accept
Metric invariance	0.052	**0.002**	0.928	−0.013	Mixed
Scalar invariance	0.145	0.093	0.778	−0.150	Reject
Feeling of safety (3 items)					
Configural invariance	0.001	–	0.999	–	Accept
Metric invariance	0.062	0.061	0.969	−0.030	Reject
Scalar invariance	0.173	0.111	0.813	−0.156	Reject
Safety confidence (5 items)					
Configural invariance	0.029	–	0.986	–	Accept
Metric invariance	0.061	0.032	0.977	**−0.009**	Mixed
Scalar invariance	0.115	0.054	0.937	−0.040	Reject
Safety confidence (4 items)					
Configural invariance	0.019	–	0.994	–	Accept
Metric invariance	0.054	0.035	0.988	**−0.006**	Mixed
Scalar invariance	0.118	0.064	0.947	−0.041	Reject

Note: Bolded values highlight that specific invariance criterion was met.

Table 11
Cronbach's Alpha and McDonald's omega (in parentheses) for the facets of perceived safety for every study.

Sample	Fear of crime	Safety confidence	Feeling of safety
1. Study 2	0.91 (0.91)	0.83 (0.85)	0.70 (0.69)
2. Study 3	0.90 (0.90)	0.85 (0.86)	0.74 (0.72)
3. Study 4 A	0.93 (0.93)	0.86 (0.87)	0.73 (0.72)
4. Study 4B	0.93 (0.93)	0.86 (0.86)	0.80 (0.79)
5. Study 5: USA	0.92 (0.92)	0.85 (0.86)	0.80 (0.80)
6. Study 5: Spain	0.89 (0.89)	0.79 (0.80)	0.60 (0.57)
7. Study 5: Greece	0.86 (0.85)	0.78 (0.80)	0.57 (0.56)
8. Study 5: Germany	0.88 (0.89)	0.80 (0.83)	0.76 (0.75)
9. Study 5: France	0.90 (0.90)	0.79 (0.79)	0.61 (0.58)

Note: Study 1 was not included as the factor model of the measure was not yet fully formed.
For Study 6 estimates with the cross-loading items are displayed.

8.3. Discussion

PS appears to be a multidimensional construct that can be measured across Western countries, with its facets performing in a similar way as in the US. Further, a consistent pattern of associations emerged with emotional stability in all five countries, replicating the results of Study 2. Importantly, women from four European countries reported more fear of crime and less safety confidence, replicating the patterns observed in the US (see Supplementary Study 3).

9. General discussion

How safe we feel is a key issue in several aspects of our life. Perceived personal safety, in brief, is how safe people feel in their social environments, around others. Despite such a simple definition, this construct is multidimensional and complex. The current investigation highlights at least three major components that we have empirically identified as reliable and valid facets of perceived personal safety: *Fear of Crime, Safety Confidence,* and *Feeling of Safety*.

9.1. Fear of crime

Fear of crime was associated with a greater attribution of causality to events to others (or alternatively less to oneself), which is an important predictor of psychological and physical health. Further, fear of crime was negatively correlated with personality traits such as emotional stability, extraversion, and openness, while being positively correlated with depression and borderline personality symptomatology, further demonstrating its potential to undermine an individual's well-being. First-person accounts of how afraid of crime people feel allow for psychological examinations of how this construct impacts other aspects of our lives, something that crime rates cannot do in such a straightforward manner. Further, as previous researchers have suggested, such reports can be summarized at a neighborhood or even a national level, creating an informative index that can be utilized in scientific investigations (Stiglitz et al., 2009).

9.2. Safety confidence

Safety confidence is an individual's tendency to feel confident in their ability to feel safe in the face of threat. It seems logical that one's trust in their capacity and skills to protect themselves should be directly related to their personal safety. Safety confidence was positively associated with increased emotional stability, extraversion, and openness, showing that individuals who exhibit this trait are more confident and outgoing, while individuals scoring lower on this construct tended to score higher on negative life outcomes. Our studies showed that men and women significantly differ in safety confidence, more so than any other facet of perceived safety. This could be attributed to both biological and sociocultural differences. Changing cultural and social norms regarding the perception of women, such as hostile and benevolent sexism (Devine et al., 2017), could increase safety confidence in women, which could reduce the gap in perceived safety (directly) and related outcomes (indirectly).

9.3. Feeling of safety

Most people tend to spend a considerable amount of time in familiar environments which tend to be devoid of direct threats. Increased feeling of safety was associated with decreased negative life outcomes, and with more constructive personality traits. Differing from the other two facets of safety, however, is the association of feeling of safety with positive life outcomes. Feeling of safety was the sole significant correlate of life satisfaction, self-flourishment, and subjective happiness, showing its importance for living a fulfilling and satisfying life.

9.4. Multidimensionality of perceived personal safety

Our results suggest that perceived personal safety is multidimensional. This conclusion comes along with multiple replications with different types of samples (online, student, community and international), multiple types of validity (face, construct, convergent, discriminant, external) and good reliability. Using a single-item measure fails to capture enough variability (that is clearly depicted by the Perceived Personal Safety Scale), does not match the complex and multidimensional character of the construct, and due to the sheer lack of number of items, is less reliable. Further, when we compared the validity of the single-item measure of safety with that of the facets of perceived safety, the single-item measure performed worse. In a scientific era where the replicability crisis has cast doubt on many social psychological findings, utilizing a more accurate measure to capture variance on a construct that is clearly impactful on our society will help researchers, practitioners, and policymakers in their work by increasing the accuracy in assessments of perceived safety, and allowing for an person-centered account of public safety.

Table 12
Bivariate correlations for each country.

	FS	SC	FoC	EX	AG	CS	ES
Spain							
SC	0.20***	–					
FoC	−0.20***	−0.24***	–				
EX	0.06	0.23***	0.01	–			
AG	0.11	−0.06	0.07	0.06	–		
CS	0.06	0.09	0.07	0.09	0.21***	–	
ES	0.21***	0.18**	−0.25***	0.10	0.12*	0.31***	–
OP	0.04	0.20***	−0.15**	0.30***	−0.03	0.08	0.17**
Greece							
SC	0.24***	–					
FoC	−0.45***	−0.40***	–				
EX	0.03	0.15*	−0.07	–			
AG	0.00	−0.04	0.01	0.02	–		
CS	0.05	0.08	0.02	0.06	0.12	–	
ES	0.23***	0.17**	−0.23***	−0.15*	0.22**	0.17*	–
OP	0.14*	0.11	−0.17*	0.18*	0.10	0.10	0.10
Germany							
SC	0.36***	–					
FoC	−0.64***	−0.35***	–				
EX	0.03	0.18*	0.08	–			
AG	0.15	−0.04	−0.14	−0.01	–		
CS	0.13	0.15	−0.03	−0.10	0.11	–	
ES	0.41***	0.20*	−0.42***	−0.02	0.18*	0.18*	–
OP	0.11	0.18*	−0.15	0.14	0.20*	0.07	0.19*
France							
SC	0.11**	–					
FoC	−0.46***	−0.23***	–				
EX	0.03	0.06	0.02	–			
AG	0.04	−0.05	0.06	0.07	–		
CS	−0.12**	−0.03	0.22***	−0.07	0.16***	–	
ES	0.17***	0.13***	−0.26***	−0.07	0.25***	0.07	–
OP	0.08*	0.13***	−0.04	0.30***	0.10**	0.04	0.03
USA							
SC	0.24***	–					
FoC	−0.22***	0.02	–				
EX	0.08	0.23***	−0.05	–			
AG	0.23***	−0.15***	−0.23***	0.20***	–		
CS	0.16**	0.02	−0.24***	0.09	0.42***	–	
ES	0.28***	0.17**	−0.33***	0.31***	0.48***	0.46***	–
OP	0.26***	0.06	−0.22***	0.22***	0.36***	0.32***	0.26***

Note: $N_{Spain} = 292$, $N_{Greece} = 216$, $N_{Germany} = 154$, $N_{France} = 674$, $N_{USA} = 312$. FS = Feeling of Safety, SC = Safety Confidence, FoC = Fear of Crime, EX = Extraversion, AG = Agreeableness, CS = Conscientiousness, ES = Emotional Stability.

* $p < .05$.
** $p < .01$,
*** $p < .001$.

Table 13
Mean gender differences for Study 5.

Outcome	Male (N = 544)		Female (N = 788)	
	M	SD	M	SD
Feeling of safety	6.03	0.82	5.87	0.82
Safety confidence	3.37	1.33	2.74	1.18
Fear of crime	2.81	1.25	3.58	1.35

9.5. Limitations and future directions

Our investigation was not without limitations. We could not adequately investigate demographic differences in perceived safety, as our samples were primarily white, Western, educated, industrialized, rich and democratic (WEIRD; Henrich et al., 2010). Consequently, the racial/ethnic composition of our samples did not allow us to consider some crucial factors that arguably influence perceived safety, which disproportionately impact racial/ethnic minorities. Considering this, future research should aim to focus on recruiting people of color with the purpose of determining whether: (1) perceived personal safety is construed similarly across different racial and ethnic groups, (2) there exist differences in perceived safety due to the aforementioned stressors that people of color experience, (3) external factors (i.e., trust in the police, government, social cohesion of one's living environment) relate to perceived safety in the same way, and (4) perceived safety is an important antecedent to psychological and physical health outcomes.

A final important limitation is the correlational nature of our research. Although we provided evidence for a significant relationship between PS and a host of important life outcomes and individual differences (i.e., personality traits, well-being, mental health, perceptions of self and the police), it is unclear which construct is driving these relationships. Further, because we explicitly relied on first-person self-report measures, it's possible that due to common method biases that observed associations could be inflated. Future research could address this by collecting third-person reports (but also see Podsakoff et al., 2003

for other recommendations). Future studies should also use experimental methods to investigate the potential feedback loop that can occur between perceived safety and major life outcomes (i.e., if we feel safer, do we feel happier? or, if we feel happier, do we feel safer?). For example, recent findings suggest that physical strength explains gender differences in fearful personality traits (Manson et al., 2022). It is possible that perceived personal safety could also explain such differences, but we are unable to test this due to the correlational nature of our studies.

Investigations on PS could stand to benefit from interdisciplinary approaches. Fields such as public health, sociology, criminology, psychology, and even political science have a lot to gain from further exploring the impact of PS on different aspects of our lives. Even within psychology, it is clear that research on perceived safety can generate important questions in several fields. Community and environmental psychology can investigate the interaction of built and living environments with subjective perceptions of safety. Research on close relationships can determine how high-quality and meaningful relationships impact and are impacted by how safe we feel in our lives. Further, it would also be important to determine how attachment style, relationship conflict and intimate partner violence shape how safe we feel in our lives. Research from the perspective of intergroup conflict could examine how feeling less safe can exert negative downstream effects on intergroup attitudes and national identification. Work from a positive and/or health psychology perspective can elucidate the potential bidirectional relationship between perceptions of safety with better physical and mental health and vice versa (from improved physical and mental health to increased perceived safety). Finally, research from personality psychology could further illuminate how our perceived safety influences or is influenced by different personality traits. Aside from replicating current results with more comprehensive measures of the BIG-5 personality traits, researchers could also explore the relationship between the facets of perceived safety and the dark triad (Furnham et al., 2013), personal values (Schwartz et al., 2012) and primal beliefs (beliefs about the nature of the world; Clifton et al., 2019).

Ultimately, our Perceived Personal Safety measure can be utilized to assess how safe we feel in our social world, enhance our understanding of what it means to really feel personally safe, and ultimately assist in the process of constructing interventions to deal with stressors of personal safety with the end goal of making our society safer.

CRediT authorship contribution statement

Stylianos Syropoulos: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Validation, Visualization, Writing – original draft, Writing – review & editing. **Bernhard Leidner:** Data curation, Resources, Supervision, Writing – review & editing. **Evelyn Mercado:** Writing – review & editing. **Mengyao Li:** Data curation, Writing – review & editing. **Sophie Cros:** Data curation, Writing – review & editing. **Angel Gómez:** Data curation, Writing – review & editing. **Aphrodite Baka:** Data curation, Writing – review & editing. **Peggy Chekroun:** Data curation, Writing – review & editing. **Joshua Rottman:** Conceptualization, Data curation, Funding acquisition, Supervision, Writing – review & editing.

Declaration of competing interest

The authors have no conflicts of interest to declare.

Data availability

All data and analysis files are available on the Open Science Framework at https://osf.io/7pesx/?view_only=6b4da0325db448dab5896ef17f0a8b95.

Appendix A. The perceived personal safety scale

Think about the area where you currently live (the residence where you spend most of your time and where you tend to sleep most nights of the year). Please read the following statements and express your agreement or disagreement.

Fear of crime

1. I feel terrified/am afraid that I may someday be the victim of a robbery.
2. I feel terrified/am afraid that I am going to be the victim of a crime.
3. I feel terrified/am afraid of being physically assaulted.
4. I feel terrified/am afraid of being threatened by someone.
5. I feel terrified/am afraid of somebody breaking into my home and stealing or damaging things.
6. I feel terrified/am afraid of gang activity.
7. I feel terrified /am afraid of becoming the victim of terrorist-related violence.

Safety confidence

1. I have the strength and skills to ward off criminals.
2. I know enough self-defense to protect myself.
3. If I was attacked at night, I am confident that I would be able to defend myself.
4. If I thought somebody was following me, I would confront them.
5. The way I look makes me feel secure.

Feeling of safety

1. Being at home makes me feel protected.
2. I feel at ease in familiar places.
3. I generally feel safe.
4. I feel safe when walking alone during the day.
5. My family makes me feel safe/secure.

Appendix B. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.paid.2024.112640.

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