RASSEGNA ITALIANA DI CRIMINOLOGIA
ANNO XIII N.1 2019

The perceived urban safety assessment scale: a tool for the multidimensional measurement of unsafety

La *perceived urban safety assessment scale*: uno strumento per la misurazione multidimensionale dell'insicurezza

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Abstract
One of the issues highlighted by the scholars in criminological literature about "fear of crime" and "unsafety" is the lack of attention paid to the quality of the measures used. This work describes the process of validation of a scale measuring perceived urban safety. Starting from the main theoretical frameworks, validation was carried out in Italy across several stages, using exploratory factor analyses and structural equation modelling. Convergent validity was studied and reliability was assessed with Cronbach's Alpha and a test-retest analysis.
The final model is based on 3 dimensions and 27 items. Fit indexes are satisfactory (CMIN/DF=1,271; RMSEA=0,026) and also reliability present good values. The assessment tool named PUSAS (Perceived Urban Safety Assessment Scale) shows good psychometric qualities, although further research is needed in order to verify the invariance.

Key words: urban safety • fear of crime • assessment tool • collective efficacy • disorder

Riassunto
Uno dei problemi evidenziati nella letteratura criminologica riguardante temi quali la "paura del crimine" e l'"insicurezza" è la scarsa attenzione prestata alla qualità delle misure utilizzate. Questo lavoro descrive il processo di validazione di una scala riguardante la percezione di insicurezza. Tenendo in considerazione i principali approcci teorici, la validazione è stata effettuata in Italia, mediante analisi fattoriali esplorative e modelli di equazioni strutturali. È stata studiata la validità convergente, mentre l'affidabilità è stata valutata con l'Alpha di Cronbach e un'analisi test-retest. Il modello finale è basato su 3 dimensioni e 27 articoli. Gli indici di adattamento sono soddisfacenti (CMIN/DF = 1,271; RMSEA = 0,026) e anche l'affidabilità presenta valori accettabili. Lo strumento di valutazione denominato PUSAS (Perceived Urban Safety Assessment Scale) mostra buone qualità psicometriche, sebbene siano necessarie ulteriori ricerche per verificare l'invarianza.

Parole chiave: sicurezza urbana • paura del crimine • scala di misura • efficacia collettiva • disordine

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DOI: 10.7347/RIC-012019-p39

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1. Introduction

According to the definition of Amerio and Roccato (2007, pag. 91), unsafety is described as a "fluid but persistent state that constitutes a confluence of perceptions, evaluations, sensations, emotions, and concerns emerging in the relationship between the individual and his or her material, social, and symbolic environment". Okunola and Amole (2011) portray the feeling of unsafety through the fear of crime, but also through other factors such as the perception of vulnerability and collective efficacy.

Recently, research on urban safety was enforced with the analysis of social informal control, and the influence of the social and ecological context (Brunton- Smith & Sturgis 2011;Valera & Guàrdia, 2014; Carro et al., 2010). In this frameword emerged the consciousness that the traditional concept of urban safety must evolve towards an interpretation model in which the social and environmental characteristics are themselves factors that produce safety.

Many scholars have questioned the approach of measuring unsafety through the fear of crime, considering instead the idea that related constructs may represent the multidimensional character of unsafety, expanding the sphere of the researcher's interest in other dimensions that define the construct of unsafety, beyond that of fear.

Despite this, the methodologies used to assess unsafety remained almost the same, with a lack of interest about the validity and reliability of the measures used for the feeling of unsafety (Jackson, 2005; Jackson, 2006; De Donder et al., 2015). Indeed, it's hard to find validation studies about measurement tools focusing on the feeling of unsafety. De Donder and colleagues (2015) presented a one-dimensional measurement scale capable of detecting the feeling of unsafety specific for the elderly population; Jackson (2005) studied a measure for the fear of crime only, but with a large set of items.

The above emphasizes the need for tools that can overcome the measurement of urban safety through the key of the fear of crime; tools that are able to capture unsafety signals from the social context, from the environmental degradation and the individual's sense of vulnerability, returning a multi-dimensional measure of the feeling of unsafety. The purpose of this paper is to present a multidimensional measurement scale of perceived unsafety, realized in Italy and based on a set of theoretical constructs well known in literature.

2. Theoretical framework

2.1 *Fear of crime*

There is still no firm evidence on the factors that influence the fear of crime, partially because of the disagreement about the definition itself of "fear of crime" (Acierno et al., 2004). Fear of crime can be described as an emotional response, a feeling of anxiety against crime or symbols that can be associated with crime (Ferraro, 1995). Other authors have pointed out that the psychological response to crime is not expressed merely in an emotional dimension, but also in a cognitive representation of the risk of being victim or potentially in a dangerous situation (Rountree & Land, 1996). Maxfield (1984) stated that the emotion that best describes the fear of crime is that experienced when it anticipates the possibility of a dangerous situation, and, according to Smith (1987), this condition is an emotional response to a threat.

Rader (2004) criticized the classical conceptualization of fear of crime, redefining it with the term "threat of victimization", whose components are emotional (fear of crime), cognitive (perceived risk) and behavioral (constrained behaviors). Jackson (2005) asserted that new valid measures are needed for the fear of crime, highlighting also that this topic requires a renewed interpretation: fear of crime is the synthesis of a set of related but distinct constructs that include the interaction between emotions, perceived risk and perception of the environment. According to Gabriel and Greve (2003) the emotional response towards crime (Affect) and the cognitive processes that lead to an assessment of the true possibility of being a victim (Cognition), are not sufficient to operate an effective measurement of the fear; a third aspect must be taken into account, the behavioral component deriving from fear (Behaviour).

In this research, this approach was used to describe the construct "fear of crime".

2.2 *Signs of physical and social disorder*

According some scholars, the fear in an urban environment is above all fear for the social disorder (Hunter, 1978). The signs of incivility offer a great contribution, since they represent symbols that increase concern about the risk of being victimized. Such signs, very common in daily life, are able to generate intense variations in the perception of unsafety, more than the crime rate would be able to do (Hunter, 1978; Perkins et al., 1992).

Some authors highlighted the existence of a direct link

between the perception of disorder and incivility and the feeling of fear and unsafety (Perkins et al., 1992; Skogan, 1986; Brunton-Smith & Sturgis, 2011). Others (LaGrange et al., 1992) argued that this relationship is mediated by the perception of risk linked to the observation of disorder and signs of incivility (Abdullah et al., 2015). Still others (Sampson & Raudenbush, 1999) stated that both are manifestations of the same phenomenon and that they differ only for the seriousness of the situations that they produce.

But individuals interpret the disorder unevenly and these differences are related to a series of individual characteristics, to the routine activities of the subject (Wallace et al., 2015; Hipp 2010) and to the ecological characteristics that are taken into account (Robinson et al., 2003; Hipp, 2007).

The concept of disorder refers to social disorder and the physical signs of incivility (Hunter, 1978), but although this concept seems to be unanimously recognized as two-dimensional, the contents are not homogenous in literature. For example, the verbal assaults were used to describe the disorder, along with prostitution, phenomena related to drugs, groups of young people with aggressive behavior (Sampson & Raudenbush, 1999), although these situations belong to criminal phenomena that must be excluded from the representation of physical and social disorder. A broader definition was attempted with the introduction of term "incivility", which express any kind of situation that has a negative effect on urban environmental conditions (Swatt et al., 2013), or behavior that violates the individual well-being (Bannister et al., 2006).

In this study we used a traditional set of indicators for signs of incivility (physical disorder) and social disorder.

2.3 *Collective Efficacy*

In the early '90s the theory of social disorganization was extended in order to emphasize the importance of formal and informal networks as a means of deterrence against crime and the harmful effects of residential instability on these ties (Bursick and Grasmick, 1993). The connection between the quality of social ties and safety was also studied through measures of social cohesion (Hedayati Marzbali et al., 2014; Warner, 2007; Okunola & Amole, 2011).

But the theoretical approach that seems to have polarized the interest among scholars is that of the collective efficacy. The collective efficacy emphasizes the importance of social ties in determining an unfavourable environment to crime or disorder and producing forms of social informal control. Collective efficacy is defined as the existence and strength of mutual relations within a community (social cohesion), together with the propensity to intervene in favor of the common good (informal social control/willingness to intervene) (Sampson et al., 1997). High levels of collective efficacy levels are associated with low levels of crime (Sampson & Raudenbush, 1999; Sampson et al., 1997), even if very serious crimes, such as murder, are taken into account (Morenoff et al., 2001). An interesting finding of Swatt and colleagues (2013) highlights that collective efficacy is also a good predictor for the fear of crime and unsafety, emphasizing that this relation is modulated differently in neighborhoods with distinct characteristics.

2.4 *Sense of vulnerability*

The last theoretical dimension apply at the vulnerability concept, which try to explain why distinct sub-groups of population (women, the elderly, the poor, ...) express a greater concern about crime, without resulting in a higher victimization. Hale (1996) considers the vulnerability an essential theme in any model that attempts to explain the fear of crime and its consistency, as predictor of unsafety, is confirmed in many studies (Hale, 1996; Okunola & Amole, 2011; McCrea et al., 2005).

In literature the measuring of vulnerability was often entrusted to proxy variables (health, sex, socio-economic status or age), but the self-representation as potential target is due to the alleged awareness of not having sufficient skills, or ability, to face criminal events, the consequences of which could have serious repercussions on individuals. But vulnerability is also linked to situational aspects (for example, being in an isolated).

In our opinion, the most complete and convincing theory was proposed by Killias (1990), who interpreted the definition of perceived vulnerability according to these three conditions: a) the exposure to criminal risk, b) the seriousness of the consequences, c) the skills and ability to deal with this situation. These three conditions were also specified by the author through physical, social and situational factors. Some tips were provided about the questions that can be used (Killias, 1990; Jackson, 2009), but so far there's a lack of experiences about the measurement of the perceived vulnerability.

3. Methods

3.1 *Study design*

The scale validation was developed in Italy between June 2015 and August 2016, according to the traditional psychometric approach.

The measuring tool of the perceived safety was originally described through four dimensions and 44 items.

1. *Concern about crime (11 items):* according to the findings of Gabriel & Greve (2003), these items describe issues relating to the individual's state of concern about crime events (generic or specific), cognitive aspects which underpin such fear, without considering vulnerability, and behavioural aspects that express constrains to the lifestyle.
2. *Collective efficacy (12 items):* according to the paradigm indicated by Sampson & Raudenbush (1999), the items describe the quality of neighborhood cohesion, the willingness to intervene in situations of disorder and the ability to exercise informal social control.

3. *Physical and social disorder (12 items):* the items of this dimension explain the perception of the environmental conditions of the neighborhood, its state of neglect, the presence of urban decay and the perception of anti-social behaviors.
4. *Sense of vulnerability (9 items):* according to the model suggested by Killias (1990), the issues taken into account are the perception of risk exposure, the sense of lack of control and the awareness of the gravity of the consequences. The items were described in order to represent the physical, social and situational components of the vulnerability.

In the first research phase (June-November 2015) the experimental version of the scale (44 items) was administered to a first opportunistic sample (n=298; mean age of 52.7; female: 57.3%). While the randomness of the observations of the sample does not represent a requirement for this kind of study, heterogeneity is instead a very important feature, since it allows to obtain the required variability for an exploratory factor analysis (EFA) (Kline, 1994). After this first phase, a new version of the tool, with a lower number of items (38), was obtained.

During the second phase (January 2015 to April 2016), a new opportunistic sample (n=896) was collected using the revised version of the scale. The dataset was divided randomly into two subgroups. The first subgroup (n=427; mean age of 47.3; female: 42%; 53.8% lived in a central Italy region, 36.3% north Italy, 9.9% south Italy and islands) was used to re-execute the EFA in order to verify the changes introduced during the first stage of research. Subsequently, the second subset of cases (n=469; 60% male; mean age 46.56; 55.5% lived in a central Italy region, 33.9% northern Italy, 10.6% south Italy and islands), was used to carry out a confirmatory factor analysis (CFA) through the structural equation modelling. At the end of the validation process a 27 items scale was obtained.

The reliability of the scale was measured through Cronbach's Alpha on the total group of data collected in this research phase (n=896).

During the third phase of research (May 2016), a convergent validity test was performed with the scale of measurement obtained by the SEM analysis; the instrument was administered to an opportunistic sample of 81 cases. Because of the unavailability, according to our knowledge, of an Italian validated scale, a 26 items Spanish questionnaire (Valera & Guàrdia; 2014) was used. Since the Spanish questionnaire was focused on the safety in public places, to met our aims this term was replaced with "neighborhood".

In order to verify the reliability of the instrument, a test-retest was performed on 65 of the 81 cases collected during the third phase. The second administration of the test-retest was carried out at a distance of 7-15 days.

In all the phases of research the tool was self-administered or administered on-line by means of a web platform. A 5-point Likert scale was used, whose extremes are "Completely false" (value 1) and "Completely true" (value 5).

3.2 *Statistical analysis*

The following criteria were used for EFA. Since there are no specific recommendations about the number of cases and considering that the sample size is influenced by a wide number of characteristics of the dataset (MacCallum et al., 1999), we followed the rule of thumb that set the sample size at numerosity of about 300 cases (Comrey & Lee 1992), with, at the same time, a ratio cases/items comprised between 5 and 10. This ratio was 6.8 in the first testing of the scale and 11.2 in the EFA performed in the second research phase.

The violation of normality suggested a factors extraction with the principal axis factoring (Costello & Osborne, 2005). The number of factors to be extracted was determined from the analysis of screeplot, that is deemed reliable when the number of cases is greater than 200 (Young & Pearce, 2013). The criterion that involves an eigenvalue higher than 1 was discarded because often it can produce a number of redundant factors (Velicer & Jackson, 1990). Since the correlation of the factors was presumed, the rotation was done with the direct oblimin method (Kline, 1994; Costello & Osborne, 2005). KMO index was used to assess the adequacy of the sample size and the sphericity assumption of the correlation matrix was verified with the Bartlett's test. The minimum saturation in the rotated solution was set at 0.32, checking for any significant crossloading (Tabachnick & Fidell, 2007). The communalities were controlled, considering acceptable values between 0.4 and 0.7 (Costello & Osborne, 2005).

The consistency of the measurement model was performed through the fit indexes obtained from the SEM analysis. We considered primarily the χ^2 (Hu & Bentler, 1999), that, however, is strongly dependent on the sample size (Jöreskog et al., 2000; Byrne, 2001) and it is almost always statistically significant when the sample size is greater than 200 units.

A wide battery of absolute fit indexes was considered: the CMIN/DF ratio (Wheaton et al., 1977), the RMSEA (Steiger, 1990), the GFI and the AGFI (Jöreskog & Sörbom, 1996). In addition to the above, incremental, or relative, fit indexes were used to assess the optimization of the model, such as the NFI (Bentler & Bonnet, 1980) and the CFI (Bentler, 1990).

The following are the expected values for the fit of the model: a value of CMIN/DF lower than 2 was required with an RMSEA lower than 0.05 and values of GFI and AGFI above 0.90; with regard of the relative fit indexes a minimum value of 0.90-0.95 was expected for CFI and NFI (Hu & Bentler, 1999; Bentler & Bonnet, 1980; Loehlin, 2004).

The Modification Indexes were used to optimize the model. The covariance between the error terms was introduced, where necessary, for those items belonging to the same factors (Bollen, 1989; Hu & Bentler, 1999). The existence of these covariances was justified by the existence of common causes that affect the answers to these indicators. All items with a multiple R^2 below the value of 2 were deleted (Hooper et al., 2008).

Regarding the sample size used for the SEM analysis, according to Stevens (1996), a good analysis would require the availability of at least 15 observations for each measured variable, while other authors (Bentler & Chou, 1987) suggest a numerosity of at least 5 cases for each parameter estimated by the model. Both criteria were met in our work.

The reliability analysis of the constructs emerging from the CFA was performed with Cronbach's Alpha; to assess the internal consistency we used a reference interval with values between 0.7 and 0.95, considering that values beyond the upper bound are indicative of redundant items (Bland & Altman, 1997; Tavakol & Dennick 2011).

In the third research phase, the convergent validity and the test-retest reliability were assessed with the Pearson's r index for linear correlation and with the non-parametric Spearman's coefficient for rank correlation, more conservative than the previous one.

All analyses were performed with the statistical package SPSS -IBM v21, while we used AMOS package v18 for SEM analysis. Results are considered significative with a value of $p<0.05$.

4. Results

4.1 *Exploratory factor analyzes*

The EFA carried out in the first research phase showed a KMO equal to 0.899 and the rejection of the hypothesis of sphericity of the correlations matrix ($p <0.000$). The screeplot suggested the presence of four factors, which, however, were unable to reproduce the original theoretical constructs. The first factor (17 items) explained the physical and social deterioration of the neighborhood; the second (8 items) described of social cohesion, which is a part of the collective efficacy; the third (16 items) combined the elements of the concern about crime to those of the sense of vulnerability, while the last contained the five residual items of the collective efficacy, those regarding the willingness to intervene.

These results enabled the researcher to detect items not properly placed, crossloadings between factors and commonality below the threshold of acceptability. Cronbach's Alpha helped us to identify other critical items.

The scale was improved aiming to a three factors model with 38 items: perception of the physical and social disorder, collective efficacy and finally concern about crime and sense of vulnerability.

The second EFA highlighted the effectiveness of the improvement interventions. KMO was very high (0.912) and the Bartlett's test rejected the null hypothesis of sphericity ($p <0.000$). The screeplot (Fig. 1) confirmed the existence of three factors, without significant crossloadings and communality values within the limits. The first factor (14 items) explained the physical and social disorder (henceforth indicated by the acronym PSD). The second factor (12 items) explained the whole construct of collective efficacy (EC). The third factor confirmed the existence of only one dimension (12 items), comprising jointly the concern about crime and the sense of vulnerability (CCSV).

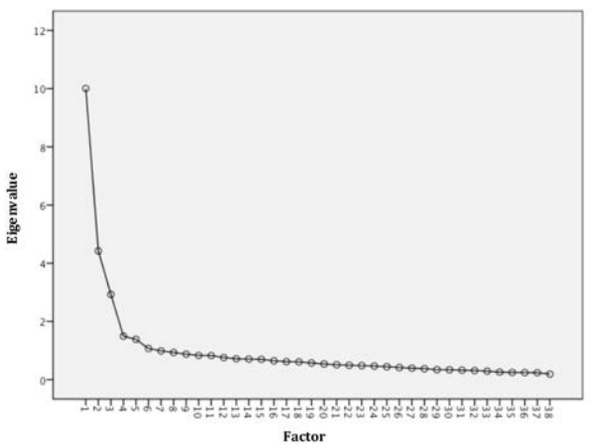

Fig. 1: screeplot of the second exploratory factor analysis (first subgroup of data collected during the second research phase, n=427; extraction method: principal axis factoring; rotation method: direct Oblimin.)

4.2 *Confirmatory factor analysis*

Each of the model dimensions (PSD, CE and CCSV) were specified as unidimensional. Initially, the model specified did not provide, however, a satisfactory result. Even not considering the χ^2 value, all the fit indexes were not adequate to the criteria assumed for a good fit (Tab. 1). RMSEA and CMIN/DF were slightly higher and the comparative indexes of fit were quite far from the expected values.

The model was optimized according to these strategies. 6 items were deleted because of the multiple R^2 value lower than 2. Some covariances between the error terms were introduced where needed. The Modification Indices were also used to identify, through the value of the Regression Weights, those items that, if correlated with a different dimension from that of belonging, would have reduced significantly the χ^2 value of the model.

A three factors model with 27 items was obtained: 10 items in the PSD dimension, 9 items in the CE dimension and 8 in that concerning CCSV (Fig. 2).

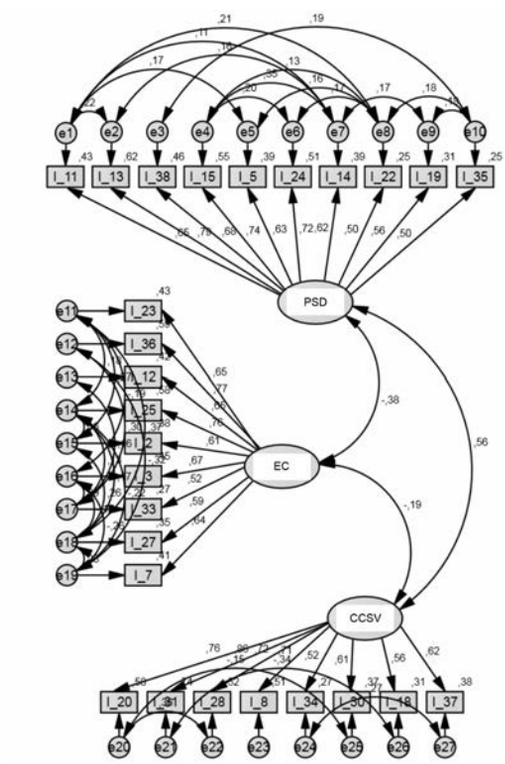

Fig. 2: Path diagram of the optimized model of the Perceived Urban Safety Assessment Scale-PUSAS (PSD=Physical and Social Disorder; CE=Collective Efficay; CCSV=Concern about Crime and Sense of Vulnerability).

All regression weights were significant, with standardized values comprised between 0.495 and 0.858. All the covariances were also significant and the Modification Indices did not suggest further improvements.

The indexes of absolute and relative fit of the optimized model are given in Table 1. Although the value of the statistic χ^2 was decreased if compared to that one of the non-optimized model (364.701 against 1693.889), it remained not significant, but overall judgment about the goodness of fit was satisfactory: CMIN/DF ratio was well below the value of 2, as well as the RMSEA presented a much lower level than the threshold established in 0.05. The other two of absolute fit indexes, GFI and AGFI, showed a value of 0.937 and 0.917. Finally the Comparative Fit Index (CFI) presented a particularly high value (0.983), while the NFI amount was just below the threshold value of 0.95.

The scale was named Perceived Urban Safety Assessment Scale (PUSAS) and the items are listed in Appendix A. The final model was based on 30 variables (27 exogenous and 3 endogenous); a total of 91 parameters was estimated, using a group of 469 observations. Given these conditions, the variables/sample size ratio was equal to 16.5, while the ratio between the model parameters and the number of cases was 5.15.

4.3 *Reliability analysis*

The measures of reliability, calculated for the whole scale and for every dimensions, showed satisfactory values (Tab. 2), especially for the PSD factor (0.886). No items, if excluded, would increase the Cronbach's Alpha.

	Original model	**Optimized model**
Absolute fit indexes		
χ^2 (g.d.l.; sign.)	1,693.889 (662; 0.000)	364.701 (287; 0.001)
CMIN/DF	2.559	1.271
RMSEA	0.063	0.026
GFI	-	0.937
AGFI	-	0,917
Comparative fit indexes		
NFI	0.763	0.926
CFI	0.840	0.983

Tab. 1: Absolute and comparative fit indexes: original model and optimized model.

	N. of Items	Cronbach's Alpha
Perceived Urban Safety Assessment Scale (PUSAS)	27	0.807
Factor 1: Physical and Social Disorder - PSD	10	0.886
Factor 2: Collective Efficacy - CE	9	0.876
Factor 3: Concern about Crime and Sense of Vulnerability - CCSV	8	0.867

Tab. 2: Cronbach's Alpha for the whole scale and for the distinct PUSAS factors (second research phase; second subset of data, n=469).

4.4 *Convergent validity*

In order to analyze the convergent validity and the scale reliability through the test-retest, we used the overall scores of the tools administered, overturning those items with a different orientation to achieve a general sum of the scores representing the perceived unsafety: the higher the total score, the greater the feeling of unsafety.

The 27 items of the PUSAS returned a total score comprised between 27 (absolute feeling of safety) and 135 (absolute feeling of unsafety).

The scores of some items of the Valera and Guàrdia questionnaire (2014) were overturned too, in order to obtain an overall score with an orientation similar to that of the PUSAS. The spanish questionnaire used a four point Likert scale, so the total score was comprised between 25 (absolute feeling of safety) and 100 (absolute feeling of unsafety).

The convergent validity was examined through a parallel administration of the two instruments. The total average score of PUSAS amounted to 57.24 (Standard Deviation: 15.14), while that of the spanish questionnaire amounted to 47,68 (SD: 9.54). The convergent validity was confirmed by Spearman's ρ (0.576) and the Pearson's r (0.625) ($p<0.01$ for both indicators) (Tab. 3).

Test-retest reliability

The repeated administration of the PUSAS was carried out at a distance of 10-15 days: in the first administration the average of the total score was 56.65 (SD: 15.43) and 56.66 (SD: 16.35) in the second administration. This difference was not significant to the Wilcoxon test. The correlation indices showed the stability of the measurement (Tab. 3): Spearman's ρ was 0.883, while Pearson's r amounted to 0.902 (both: $p <0.01$).

	n	Pearson's r	Spearman's ρ
Convergent validity	81	0.625*	0.576*
Test-retest	65	0.902*	0.883*

*: $p<0,01$ (two tails)

Tab. 3: values of the Pearson's r and of the Spearman's ρ coefficients for the convergent validity and for the test-retest analysis.

5. Discussion

The findings of this work confirm that the Physical and Social Disorder (PSD) is closely related to the sense of unsafety. During the EFAs it has always been the first extracted factor, with the greatest weight in explaining the perceived safety. This may suggest that the environmental characteristics have the greatest impact in determining the perceived unsafety and this evidence is consistent with the research of Guàrdia and Valera (2014). This issue emphasizes the importance of the social disorganization theory, which many authors have considered crucial in their research (to name a few: Brunton-Smith & Sturgis, 2011 ; Hartinger-Saunders et al, 2012; Perkins et al, 1992; Wilson & Kelling, 1982; Abdullah et al, 2015; Kleinhans & Bolt, 2013; Van der Wurff et al, 1989). Although the perception of physical and social disorder is based on a subjective judgment, also influenced by individual characteristics (Wallace et al., 2015; Ferretti et al., 2018) and, therefore, not necessarily homogeneous with respect to the same environmental conditions, the presence of the signs of incivility and social disorder has a significant impact on the perceived risk of being a victim of a crime (LaGrange et al., 1992).

The second dimension of the model, Collective Efficacy (CE), once again underpin the strategic importance of the theory of social disorganization, and it offers an interpretation of this topic which is comparable to the theoretical paradigms in literature (Morenoff et al., 2001; Sampson et al., 1997).

Regarding the third factor of the model (PCSV), which contains jointly the concern about crime and the sense of vulnerability, some evidences may justify this finding. Hale (1996) stated that any model that attempts to explain the fear of crime shouldn't be separated from vulnerability. The perception of vulnerability with respect to the sense of unsafety is mediated by the judgment about the relative or absolute risk (Jackson, 2009; Killias & Clerici, 2000) and this implies that fear of crime is related to the likelihood of the seriousness of the consequences, or the ability of the individuals to control the consequences, or to both. This invokes the concept of perceived risk, which only apparently was not considered between the PUSAS dimensions of unsafety. At the moment, the theoretical approach used to describe the concern about crime comprises a component identified by the term "cognition" and defined as an acceptable procedure for estimating the fear of crime, since such anticipatory judgments are nothing but a constitutive element of fear itself (Gabriel & Greve, 2003). Furthermore, a recent research (Vanderveen, 2006; pag. 195) highlights that the concept of "risk" may overlap with that of "fear of crime" and that, using an interdisciplinary focus, "fear of crime" and risk perception can be viewed as parts of the same complex.

According with the definition of unsafety used by Amerio and Roccato (2007), our findings confirm that this feeling emerge from the material, social and symbolic environment, in a mixture of emotional and cognitive processes and than individual's perception of safety/unsafety is rooted primarily in the characteristics of the ecological and social relationships.

These three factors, as expected, are closely interconnected: Physical and Social Disorder (PSD), Collective Efficacy (CE) and Concern about Crime/Sense of Vulnerability (CCSV) are linked by relationships that confirm the literature findings.

An inverse relationship between physical/social disorder and collective efficacy was assessed: the signs of incivility, the evidence of a gradual deterioration of the social quality of the environment lead to a weakening of the structure itself social, this progressive detachment from cohesive ties take to the decrease of individual's self-identification with

the environment and consequently to the disregard for its tutelage and protection. There are many references in literature that support this hypothesis (Sampson & Raudenbush, 1999; Keinhaus & Bolt, 2013).

Conversely, a positive sign was detected between PDS and CCSV: positive changes of the first are associated to positive changes of the second. This finding confirms the validity of those theories that assumed a direct effect between the perception of the social disorganization or of the signs of incivility and the feeling of unsafety (McCrea et al., 2005; Robinson et al., 2003; Scarborough et al., 2010; Abdullah et al., 2015; Brunton-Smith & Sturgiss, 2011; LaGrange et al., 1992).

Finally, also the link between CE and CCSV had an inverse relationship that results, for example, in a decrease of the sense of fear and unsafety compared to positive changes of social cohesion and the willingness to intervene through informal social control actions. Also in this case there are many references in literature that support this hypothesis (Morenoff et al., 2001; Sampson & Raudenbush, 1999; Adams & Serpe, 2000; Gibson et al., 2002; Hipp; 2007).

It's highly convincing that the sense of unsafety and fear of crime is encouraged by a deteriorated urban and social environment, but it's not clear which kind of mutual dependence can exist between PSD and CE: in other words, is the degraded urban environment, physically and socially, that represents the necessary condition for the weakening of the social cohesion and, consequently, and for the inability to exercise the informal social control? Or, conversely, the involution of the physical and social environment quality leads to a reduction of the collective efficacy?

Wesley Skogan (1986) stated that fear of crime can produce the progressive breakdown of social relations, thus weakening the informal social control processes, increasing crime and disorder and resulting in the decline of the physical characteristics and the social structures of the neighborhood. According to this paradigm, the fear of crime seems to be located at the point of origin of the social dysfunctions that are able to create the decline of the neighbourhood's physical and social environment. That's a specular vision to that of other authors which, instead, identify the perceived disorder and the incivilities as factors predisposing to the onset of the sense of unsafety (for example, Wilson & Kelling, 1982). The research existing in literature seems to point out that the circumstances described above are closely inter-connected and that they are able to feed each other, in a spiral of unknown origin, without a clear understanding of the true regulatory mechanism among the factors generating the fear of crime.

Conclusions

PUSAS may provide a valuable contribution in this field of research, in order to study the causal relationships between the dimensions of safety, even in a longitudinal perspective.

Most of the research carried out about unsafety make use of cross-sectional studies, which, by their nature, provide robust evidence on the association of the factors that may influence the fear of crime, but do not explain the complexity of their causal connections. Longitudinal studies may be more useful, but, although many authors emphasized their importance (Karakus et al., 2010; p. 180), there are few examples in literature (Robinson et al., 2003; Harting Saunders et al., 2012; Markowitz et al., 2001).

In perspective, bearing in mind that these connections may show heterogeneity (Swatt et al., 2013), it will be necessary to deepen the study of PUSAS, with the aim of verifying the robustness of the model with respect to different individual and ecological characteristics.

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