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Defining and Measuring Fear of Crime: A New Validated Scale Created from Emotion Theory, Qualitative Interviews, and Factor Analyses

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ABSTRACT AND ARTICLE INFORMATION

Fear of crime researchers have long debated how to best define and measure fear of crime. There is disagreement about the definition of fear of crime, which has led to inconsistent measurement. Our goal was to develop a new fear of crime scale using a theory of emotion and rigorous methodology. Scale development involved five major stages: in-depth interviews to understand how people describe their fear of crime, qualitative analysis to develop questionnaire items, pretesting, factor analyses, and psychometric validation. Qualitative interviews ($N = 29$) revealed that people use words like “fear,” “worry,” and “concern” interchangeably. After qualitative analysis led to an initial item pool, factor analyses yielded a 10-item, one-factor scale. Quantitative analyses ($N = 665$) revealed standardized factor loadings between .715 and .888, an internal consistency of $\alpha = .945$, and convergent and divergent validity. Our new measure will allow greater precision when researching fear of crime.

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Violent crime in the United States peaked in the early 1980s and again in the early 1990s, but started steadily declining in 1993 and has stabilized since (Donohue, 2017; Fox & Zawitz, 2010). Crime has decreased by at least half, with estimates ranging from 49% according to official police data to 77% according to data from the National Crime Victimization Survey (Donohue, 2017). The decline in crime has been so drastic that the 2014 homicide rate—4.4 homicides per 100,000 people—was the lowest since 1957 (Donohue, 2017; Fox & Zawitz, 2010). The 2015 and 2016 homicide rates increased slightly to 4.9 and 5.3 homicides per 100,000 (Federal Bureau of Investigation [FBI], 2016), though overall, crime rates still show a decades-long downward trend.

Public perceptions of national crime prevalence tend to be out of proportion with actual crime prevalence (Donohue, 2017; Maguire & Pastore, 1995; McCarthy, 2015; Roberts & Stalans, 2000). After 9/11, crime continued to decrease but the percentage of Americans believing that crime was rising immediately increased (Donohue, 2017; McCarthy, 2015). Since then, the percentage of Americans believing crime was rising has remained high and out of proportion with U.S. crime rates (Donohue, 2017; McCarthy, 2015). In 2016, a Gallup poll found that 53% of Americans “worry a great deal” about crime (Davis, 2016). This was a 10-point increase from the year prior and the highest level since the months after 9/11 (62%).

Fear of crime can manifest in several negative outcomes, independent of actual victimization. Research has shown that people with high fear of crime had almost double the odds of depression (Stafford et al., 2007). Fear of crime is also associated with poorer physical health (Rader et al., 2020), including poor sleep (Hill et al., 2016), limited physical functioning, and more chronic health conditions (Ross & Mirowsky, 2001).

Given its far-reaching effects, fear of crime has been a popular criminological research topic for decades, but there are two considerable limitations in fear of crime research. First, there is little consensus on the definition of fear of crime (Collins, 2016; Ferraro & LaGrange, 1987; Henson & Reyns, 2015; Warr, 2000). Definitions of fear of crime tend to vary from study to study—and sometimes arbitrarily. There are several conflicting definitions of fear of crime yet limited research efforts to resolve these differences. There has been little theoretical or empirical effort dedicated specifically to conceptualizing fear of crime (Henson & Reyns, 2015). Second, the disagreement over the meaning of fear of crime has led to an inconsistent tradition of measurement.

Uncertainty in definition and measurement potentially jeopardizes the meaningfulness of fear of

crime research. For example, Collins’ (2016) meta-analysis revealed that age differences in fear of crime were largely impacted by differences in survey methodology. Quality research depends on precise and standard measurement, which has not yet been established for fear of crime.

The current study sought to improve the definition and measurement of fear of crime. Our study makes a meaningful contribution to the fear of crime literature in two major ways. To our knowledge, ours is the first study to introduce the theory of constructed emotion to the study of fear of crime. We also were the first study to systematically develop a new fear of crime measure from qualitative interview data.

Before we introduce our new fear of crime definition and measure, we will present a chronological timeline of scholars’ previous definitions of fear of crime over the past few decades, noting several contradictions. We will then outline the history of fear of crime measurement, addressing the limitations of each approach. Finally, we will review the theory of constructed emotion before describing our method.

Literature Review

Unclear Definition

For as long as fear of crime has been studied, there has been uncertainty about its meaning. Ferraro and LaGrange (1987) lamented that fear of crime has been defined in so many different ways that the phrase has become minimally useful (p. 71). Decades after their warning about differing definitions, this remains a problem in fear of crime research.

A Timeline of Defining Fear of Crime

Furstenberg (1971) was among the first researchers to conceptualize fear of crime. He criticized reports on public perceptions of crime for using “fear” and “concern” interchangeably, arguing that they are completely separate concepts (p. 603). He further explained that fear of crime is measured as one’s perceived chances of victimization, whereas concern refers to one’s estimated seriousness of the country’s crime problem (p. 603). Furstenberg’s criticism highlighted a major question in defining fear of crime: Does fear of crime encompass concern, or are they different?

Garofalo (1981) defined fear as an “emotional reaction characterized by a sense of danger and anxiety. . . produced by the threat of *physical harm*” (p. 840, emphasis in original). He argued that fear is a reaction to physical harm, whereas a reaction to potential property loss might be better described as

worry. He implied that the experience of potential property loss is more cognitive, whereas perceived physical threat is more emotional. However, he further explained that property loss could still elicit fear if the value of the property is high enough or if the property crime is perceived as possibly leading to physical threat. Interestingly, Garofalo defined fear as anxiety, but other researchers (Clark, 2003; Warr, 2000) would later argue that anxiety is distinct from fear. Garofalo (1981) also contradicted Furstenberg (1971): Furstenberg defined fear of crime as perceived risk, but Garofalo distinguished between perception and emotion. In only a decade, there were already many competing conceptualizations of fear of crime. Perceived risk, worry, anxiety, and fear were each considered to be part of the experience of fear of crime depending on the researcher.

Ferraro and LaGrange (1987) were among the first researchers to define fear of crime systematically. Their taxonomy (originally put forth by DuBow et al., 1979) separated perceptions of crime into three categories: judgments (about risk of crime), values (concern), and emotions (fear). They defined fear of crime as “a negative emotional reaction to crime or the symbols associated with crime” (p. 72). They argued that the concept “fear of crime” should be limited to the emotional component, maintaining that it is “conceptually distinct” from concern and perceived risk (p. 72). Their conceptualization was consistent with Furstenberg’s in that they continued the tradition insisting that concern and fear are distinct. But, their conceptualization was also inconsistent with Furstenberg’s because Furstenberg defined fear of crime as perceived risk, whereas Ferraro and LaGrange considered fear to be an emotion and perceived risk to be a judgment. Since then, many other scholars (Ferraro, 1995; Henson & Reyns, 2015; Rader, 2017; Rountree & Land, 1996; Warr, 2000) have also argued that perceived risk is a separate concept. A second disagreement emerged: Is fear of crime purely emotional or does it include one’s perceived risk of victimization?

Efforts to reconceptualize fear of crime slowed in the 1990s but gained speed again in the early 2000s. Since then, more researchers have attempted to reconceptualize and typologize fear of crime, but there is still considerable disagreement.

Warr (2000) agreed with Ferraro and LaGrange (1987) that fear is an emotion, but he criticized their definition for being vague: A “negative emotional reaction” could refer to anger, sadness, or disgust, instead of fear. He stated that “fear is a feeling of alarm or dread caused by an awareness or expectation of danger (see Sluckin, 1979)” (p. 453). He specifically argued that fear of crime is distinct from perceived risk of victimization—he believed

perceived risk to be a cause of fear of crime. He distinguished fear of crime from perceived risk by outlining the physiological changes of fear including sweating and increased heart rate (p. 454). However, there is newer evidence indicating that fear cannot be identified by physiological markers (Barrett, 2017; Siegel et al., 2018). Even if there were strict physiological markers of fear, Warr’s approach to measuring fear of crime does not directly measure physiology or ask about physiological experiences (see *Previous Measurement* below).

Warr (2000) contradicted Garofalo (1981) by pointing out that, in psychology, fear is caused by immediate threats, whereas anxiety is caused by perceptions of the past or future (p. 454). This presented a third disagreement: Does fear of crime encompass both fear and anxiety, or are they distinct? In an interesting departure from previous fear of crime research, Williams and colleagues (2000) argued that “fear of crime” is perhaps better conceptualized as “worry about victimization” until the field comes to an agreement on the psychological components of fear of crime.

Three decades into this debate, researchers began conceptualizing fear of crime in more nuanced ways, beyond distinguishing between different words for fear of crime (e.g., fear, worry, concern, anxiety, etc.). Gabriel and Grieve (2003) introduced the difference between situational and dispositional fear of crime. Situational fear of crime is transient fear felt in the moment, whereas dispositional fear of crime is someone’s tendency to fear crime. However, it would be practically impossible to measure situational fear of crime (outside of a lab setting) because a researcher would have to take measurements during a criminal situation. Thus, researchers are limited to measuring dispositional fear of crime. That is, we have to assume that someone’s level of fear of crime refers to their tendency to fear crime.

Later on, researchers still debated the relationship between fear of crime and perceived risk, despite earlier researchers’ warnings that fear of crime is distinct from risk perception. Rader (2004) argued that emotion (fear of crime), cognition (perceived risk of victimization), and behavior (constrained behaviors) comprise the larger construct “threat of victimization.” She reasoned that each of these indicators are responses to the threat of victimization. This is an interesting and plausible approach, but this divergence in conceptualization further highlights the disagreement among researchers about what fear of crime is.

Jackson (2005) posited that fear of crime encompasses the frequency of worry of being victimized, perceptions of risk, beliefs about crime rates, perceptions of disorder, and perceptions of the

community. He chose to measure “worry” instead of “fear” or “anxiety.” He argued that fear is an intense physiological response to a present threat, anxiety is too diffuse, but worry reflects a mental state that involves hypervigilance and evaluation of possible danger.

This timeline presents three disagreements in defining fear of crime. First, is fear of crime distinct from concern, or are they interchangeable? Second, does fear of crime include perception of risk? Third, does fear of crime include anxiety, or are they inherently different? Even after 50 years of attempts to conceptualize fear of crime, these questions have remained unanswered. These remaining questions speak to the need for research to elucidate what fear of crime is.

Previous Measurement

This section reviews previous approaches to measuring fear of crime. There are several traditions of measuring fear of crime: 1- or 2-item measures from national surveys, asking about fear of specific crimes, asking about frequency and intensity of fear of crime, and attempting to measure a global fear of crime construct.

Single-Item Measures

The earliest examinations of “fear of crime” used only a single item, from either the General Social Survey (GSS) or the National Crime Victimization Survey (NCVS). Since 1973, the GSS has asked, “Is there any area right around here—that is, within a mile—where you would be afraid to walk alone at night?” (National Opinion Research Center, 2018). The NCVS asks, “How safe do you feel being outside and alone in your neighborhood at night?” (Hale, 1996; Hinkle, 2015; McGarrell et al., 1997). Sometimes researchers use a corresponding item about daytime. Neither the GSS nor NCVS specifically ask about crime—respondents might be afraid to walk alone at night due to heavy traffic, getting lost, stray animals, or icy sidewalks. Further, the NCVS item does not ask about fear, but rather perceived safety. These items also cannot measure fear of crime in situations other than being outside and alone in one’s own neighborhood at night. Another concern is that those who are most fearful of crime are least likely to be alone outside at night (Hale, 1996).

Measuring Fear of Specific Crimes

Another common approach to measuring fear of crime is asking respondents to rate their fear of a list of specific crimes. Many researchers have taken this approach, asking about as many as 16 crimes or as few as one. Warr (1984) developed a 16-item measure that asks participants to indicate their level of fear of 16

different crimes, including “being beaten up by a stranger,” “being murdered,” and “having something taken from you by force” (p. 685). He also asked participants to rate their fear of “being sold contaminated food” and “receiving an obscene phone call” (p. 685), which may not reflect someone’s fear of crime. He also asked two items about cars (e.g., car theft), which are not relevant to participants without cars. Ferraro (1995) took the same approach but asked about 10 crimes; he also included an item about car theft.

As mentioned above, Ferraro and LaGrange (1987) defined fear of crime as an emotional reaction, but Ferraro’s (1995) measure is incongruent with that definition. This jeopardizes content validity, which is a measure’s representation of the entire construct (Haynes et al., 1995). In other words, the measure does not represent the entirety of the fear of crime construct. Asking participants to rate their fear of 10 various crimes would be akin to measuring anxiety by asking participants to rate their anxiety about a variety of things such as social situations, flying, work, finances, politics, body image, germs, death, public speaking, and so forth. Those questions might identify some individual differences in anxiety but would not capture the actual emotional qualities of anxiety. Thus, Ferraro’s (1995) approach of asking about fear of specific crimes may also not capture the emotional qualities of fear of crime.

Aside from the content-related concerns with this approach, the number of crimes and the specific crimes included in these measures are seemingly arbitrary. Swatt and colleagues (2013) asked about five crimes; Gau and colleagues (2014) asked about three crimes (assault, burglary, and robbery); Gray and colleagues (2008) also asked about three crimes (car theft, burglary, and robbery); and Gray and colleagues (2011) asked only about robbery.

Frequency and Intensity of Fear of Crime

Farrall and Gadd (2004) diverged from previous traditions in fear of crime research by asking about both frequency and intensity of fear of crime. They first asked, “In the past year, have you ever felt fearful about the possibility of becoming a victim of crime?” (p. 128). Then if participants answered yes, they asked another question about how frequently they felt that way in the past year. Finally, they asked a third question: “On the last occasion, how fearful did you feel?” with response options ranging from “not very fearful” to “very fearful.”

Gray and colleagues (2008) adapted this method to ask about the frequency and intensity of participants’ fear of three specific crimes (car theft, burglary, and robbery): “In the past year, have you ever felt worried about... [car theft / burglary /

robbery]?” Interestingly, Gray and colleagues (2008) diverged from the original item to ask about worry instead of fear. Their second question is identical, but their third question diverges as well. They asked the same question (“on the last occasion, how fearful did you feel?”), but they gave response options asking about worry instead of fear, ranging from “not very worried” to “very worried.” Gray and colleagues (2011) did this as well. It is interesting that they chose to change the first question from fear to worry, but in their third question on intensity, they conflated fear with worry. Gray and colleagues (2011) also note that surveys in the U.K. tend to ask about worry about crime, whereas surveys in the U.S. tend to ask about fear of crime. This further points to the inconsistencies in definition and measurement—particularly whether fear and worry can be used interchangeably or if they are different constructs.

Global Fear of Crime

The final major approach to measuring fear of crime is the attempt to capture a global fear of crime construct. The global fear of crime approach attempts to measure fear of crime by uncovering the underlying mental construct. Lee (1982) created one of the first global fear of crime measures. He included straightforward and face-valid items such as “I worry a great deal about my personal safety from crime and criminals” (p. 290). However, the last item—“Please tell us whether *crime or fear of crime* has been a serious problem for you in the past year” (emphasis added)—is double-barreled, which threatens the validity of the measure. If someone scores high on this item, what does it mean? Someone could have a serious problem with crime but a low level of fear. Or, someone could have no problem with crime but have a high level of fear.

Phelan and colleagues (2010) modified Senn and Dzinas’ (1996) fear of rape scale to ask about violent crime more generally. They asked 28 questions, including “The possibility of physical assault affects my freedom of movement” (p. 45). However, five of the 28 items ask about public transportation habits, and four items ask about one’s car, which threatens construct validity. “When I am choosing a seat on the bus or subway I am conscious of who is sitting nearby” is irrelevant to those who do not use public transportation, just as “If I was driving alone and I had to park my car, I would try to park on a well lit street” is irrelevant to those who do not have a car. Asking questions that are not relevant to participants threatens construct validity because participants either have to skip the question or guess how they would feel.

More recently, Cops (2013) developed an eight-item global fear of crime scale. The first four

items do not ask about crime at all, such as “In the evenings you have to be very careful walking down the streets” (p. 1113). Three items have leading language that could encourage an acquiescence bias (Hurd, 1999). For example, the inclusion of the word “nowadays” in the item “Nowadays it is too unsafe to let children be unsupervised on the streets” may lead participants to believe that crime is a serious problem or has increased in recent years. Careful survey methodology is essential for precise measurement.

Summary of Previous Fear of Crime Measures

The 1- or 2-item measures are concerning because the items do not specifically ask about crime. The specific crimes approach is concerning because of the considerable variation in the number of crimes and the specific crimes chosen as well as the limited ability to capture the emotional qualities of fear of crime. The global approach to measuring fear of crime is concerning because the survey methodology of previous measures threatens the interpretability of their results. Proper measurement requires careful application of both survey methodology and theory.

What is Fear?

In measuring fear of crime, it is important to consider the psychological conceptualization of fear as a mental construct. This paper introduces a psychological theory of emotion to address this. Specifically, we applied the theory of constructed emotion (in contrast to the earlier theory of basic emotions) to inform the definition of fear and thus the operational definition of fear of crime.

Basic Emotion Theory

Warr (2000) pointed to specific physiological changes like increased heart rate and quickened breathing (p. 454) to define fear and differentiate it from other emotions. This approach to defining fear follows the early psychological tradition of basic emotions. Ekman (1999) and Warr (2000) both contend that fear is a reaction to the immediate threat of harm. Ekman’s (1999) basic emotions theory contends that fear is a basic emotion, which means that it can be distinguished by certain features including distinct facial expressions, physiology (including brain activity and heart rate), and universal antecedent events (i.e., specific types of triggers), among other criteria (Ekman & Cordaro, 2011). He also argues that fear and other basic emotions are universal, with little to no variability across cultures. However, the larger body of research on emotions no longer supports this theory. A recent meta-analysis of 202 studies showed that autonomic nervous system activity cannot distinguish between various emotions, indicating that fear and other emotions do not have distinct

physiological boundaries (Siegel et al., 2018). This contradicts Warr's (2000) argument that fear is distinct from anxiety due to the physiological properties of fear including sweating and increased heart rate.

Theory of Constructed Emotion

In direct contrast to basic emotion theory (and Warr's conceptualization of fear of crime) is the theory of constructed emotion. Broadly, this theory posits that emotions are not hardwired in the brain from birth, but rather are constructed by the brain in the moment as needed (Barrett, 2017). Barrett theorizes that emotions begin with "affect," which refers to feeling either pleasant or unpleasant to a certain level of intensity. Then, an emotion occurs when someone feels affect and labels it with an emotion concept (e.g., "fear"). Without the emotion label, there is only pleasantness or unpleasantness. Basically, emotions are a person's verbal categorization of their feelings in relation to the world around them (Barrett, 2017).

As such, emotions are highly dependent on context. Barrett (2017) summarizes that bodily sensations do not have specific meanings—they only become meaningful when we apply verbal concepts to make sense of those sensations. For example, the feeling of an achy stomach can have many different meanings depending on the context. In front of an audience, it can mean nervousness. On a date, it can mean sexual arousal. After a transgression, it can mean guilt. After a death, it can mean sadness. During a tied game, it can mean excitement. When being followed by a stranger at night, it can mean fear (of crime). A person's interpretation of the aching sensation depends on the brain's assessment of that person's needs in that context as well as their previous experiences in similar contexts.

Emotion concepts depend on language because emotions are labels for affective experiences. Emotional granularity refers to a person's ability to distinguish different emotion concepts (Barrett, 2017; Barrett & Bliss-Moreau, 2009). For example, someone who can define differences between "happy" and "blissful" or between "nervous" and "anxious" has higher emotional granularity than someone who considers each of those pairs to be synonyms. Those with higher emotional granularity actually have more nuanced emotional experiences than those with lower emotional granularity.

In this way, the experience of emotion is bound by language. The emotions people feel depend on the words they know to describe their affective experiences. Barrett (2017) theorizes that emotions are not reactions, but are rather constructions of reality. This notion is consistent with the sociological tradition of symbolic interactionism. According to symbolic

interactionism, meanings of things are social products that arise from social interaction, shared language, and communication (Stryker & Vryan, 2003). Barrett would agree that the meanings of emotions depend on social interaction and communication and arise from shared language.

Purpose of Study

The current study sought to improve the definition and measurement of fear of crime. The major purpose of the current study was to develop a new fear of crime scale using theory and a rigorous methodology. First, to improve the definition of fear of crime, we integrated the theory of constructed emotion from the field of psychology with the criminological study of fear of crime. This theory, and the current study, highlight important aspects of emotion, which is essential to understanding fear and thus fear of crime. Second, to improve the measurement of fear of crime, we created a new fear of crime scale based on qualitative reports of people's descriptions of their fear of crime.

Method

Scale development and validation involved five major stages. In Stage 1, 29 in-depth interviews were conducted to understand how people describe their fear of crime. In Stage 2, themes and statements from interviews were used to develop an initial pool of questionnaire items. In Stage 3, items were pretested with cognitive interviews as well as review by experts on fear of crime. In Stage 4, after pretesting and revisions, we collected two quantitative samples for exploratory factor analysis ($N = 305$) and confirmatory factor analysis ($N = 360$). Finally, in Stage 5, we combined the two quantitative samples ($N = 665$) and tested our new scale for convergent and divergent validity by comparing it to existing measures from both criminology and psychology. All stages of the study were approved by the IRB.

Stage 1: In-depth Interviews

The purpose of the qualitative interviews was to generate a new understanding of fear of crime. Jackson (2005) advocated that "qualitative data can serve as an important corrective" to the problems associated with question wording in survey research when defining and measuring a vague term like fear of crime (p. 297). By having participants describe fear of crime in their own words, we identified the way participants actually describe their fear of crime. Uncovering the ways in which people describe their fear of crime allowed us to create a measure based on

their actual emotional experiences. Once interviews revealed how people describe their fear of crime, we used both themes and statements to create questionnaire items.

Sample and Participants

We used a combination of purposive, convenience, and snowball sampling to recruit a sample of 29 community members in a mid-sized western U.S. city for in-depth interviews. In addition to the city being where the authors lived at the time of the study, the city also had a crime rate higher than the U.S. average (FBI, 2019), which we thought was appropriate for the study. Purposive sampling involved advertising on nextdoor.com—a neighborhood-based online forum—and at Neighborhood Advisory Board meetings for each of the city's five wards. We chose these strategies because these populations would likely have an opinion about crime. We also used convenience sampling by posting fliers in various neighborhoods with differing crime rates. Lastly, we also used snowball sampling, in which each participant was asked to invite other people to participate. We stopped recruitment efforts once we reached saturation, which is when additional data collection no longer yielded new themes.

Interviews took place between November 2018 and April 2019. All interviewees lived in the local community, except for one participant who had recently moved to a different city in the state and was interviewed online via Zoom. The sample was 58.6% men. Interviewees ranged in age from 26–73, and the average age of interviewees was 51. Most interviewees (89.7%) were White, 10.3% were Black, and one participant was Middle Eastern. Only one participant had never been the victim of any kind of crime. Almost one-quarter (24.1%) of the sample worked in law enforcement. While we did not intend for this proportion of law enforcement officers, they were more responsive to recruitment efforts than the general public. The proportion of law enforcement officers in the sample was not surprising due to our purposive sampling of community members who should have an opinion about crime. Additionally, snowball sampling led to increasing numbers of officers.

Procedure

The first author conducted all 29 interviews. Interviews were semi-structured. Interviewees were first asked general questions about their perceptions of the city, their neighborhood, and their experience with crime. Then, we asked about their emotional reactions to crime and their fear of crime. The interview guide (Appendix A) included questions ranging from, “What

are your thoughts about crime in general?” to “How does the possibility of crime make you feel?” to “What does it feel like when you are afraid of crime?” The interview guide included follow-up questions to each major question to encourage interviewees to elaborate on their responses. Since the purpose of the interviews was to uncover the emotional experience of fear of crime, follow-up questions focused on the emotional reactions and feelings associated with their fears, perceptions, and thoughts about crime. Interviews lasted approximately one hour and were audio recorded and transcribed with participants' consent. Participants completed a brief exit survey with demographic questions after they were interviewed.

After each interview, the first author wrote memos reflecting on the participant's responses. Each memo detailed notable statements, connections to theory, connections to previous research, and emerging themes. We used memos to easily discuss possible emerging themes from the interviews to guide our coding.

We coded interview transcripts in Dedoose using a combination of induction and reference to theory and literature. First, broad codes were applied to indicate the question and response for each major interview question. Then, more specific conceptual codes were applied for emerging themes and concepts that are consistent with theory and prior literature. This conceptual coding was then used to categorize interviewees' remarks about their feelings and emotions regarding crime.

Coding was focused most on participants' feelings and emotions. Three major coding categories emerged: emotion words, unpleasant affect, and concern. Statements were coded as emotions when only interviewees mentioned specific emotion words. For example, fear was coded for only when interviewees mentioned words such as “fear,” “fearful,” “afraid,” “scared,” “scary,” “terrifying,” “terrified,” “frightening,” and “frightened.” Statements were not coded as fear if an interviewee only mentioned feeling physiological changes such as quickened breathing or increased heart rate. For example, “we have a security system on our house and I'm afraid not to turn it on at night when we go to sleep” was coded as fear, but “I immediately felt a chill up my spine” was not coded as fear. Throughout coding, we referenced the theory of constructed emotion for guidance on coding emotions.

Based on recent psychological evidence, the theory of constructed emotion contends that there are no specific physiological markers of emotions (Barrett, 2017; Siegel et al., 2018), which supports the decision to exclude physiology from emotion codes. Barrett also argues that emotions are distinguished by emotion words, thus further suggesting that coding

emotions should be limited to emotion words. Therefore, coding was focused on the subjective mental experience of fear of crime.

Unpleasant affect was coded using the same approach. A statement was coded as unpleasant affect if the interviewee mentioned words such as “upset,” “uncomfortable,” “uneasy,” “bothered,” “frustrated,” “stressed,” and “distressed.” None of these words refers to a specific emotion, but rather to general unpleasantness (i.e., unpleasant affect). For example, when interviewees say that crime makes them feel “upset,” it could refer to feeling sad, angry, anxious, or other negative emotions. Since no specific emotion was mentioned, “upset” and related words were coded as unpleasant affect. For example, “it just made me really uncomfortable” was coded as unpleasant affect. This is consistent with words used to describe unpleasant affect according to the affective circumplex, which models affect along two dimensions: valence (feeling positive or negative) and arousal (the degree of excitement; Barrett, 2017; Russell, 1980).

Concern was coded using the same process as coding emotion words—only when interviewees used words such as “concern,” “concerns,” “concerned,” and “concerning.” For example, “I was very concerned about somebody breaking into our house” was coded as concern. Concern was not coded as emotion or affect, since it is not necessarily an affective state. We used the affective circumplex (Russell, 1980) and previous research to inform coding decisions. Concern was treated as a cognitive state that may or may not be associated with an affective state. In other words, concern may represent a mental state, but not one with an arousal dimension. Perhaps concern is the cognitive state associated with perceiving a particular object as being relevant to a particular situation. Ferraro and LaGrange (1987) considered concern to be a value, distinct from fear as an emotion, which further supports the decision to create a separate code for concern.

We specifically did not code behaviors as emotions. Many interviewees reported feeling hypervigilant or avoidant independent of their level of fear. For example, some interviewees said they do not fear crime because they are hypervigilant, whereas others reported being hypervigilant because they fear crime. Similarly, some interviewees said they do not fear crime because they avoid certain areas, whereas others said they avoid certain areas because they fear crime. This indicates that the same behaviors can be found in people with varying levels of fear, and thus, behaviors were not valid indicators of fear of crime.

Qualitative Results

Qualitative analysis revealed three major findings. First, interviewees reported a wide range of fear-related emotional experiences regarding the possibility of crime. Second, in addition to emotions, interviewees reported experiences that are consistent with unpleasant affect. Third, when describing their fear, interviewees used many words as synonyms for fear including “concern” and “worry.”

Variety of Emotional Experiences

Fear and Fear-Related Emotions. Interviewees reported a variety of emotional experiences when describing their perceptions of crime. Fear was the most common emotion subcode. All 29 interviewees (100%) mentioned fear or related words including “fearful,” “scared,” “scary,” “afraid,” and “terrified.” We also coded separately for other fear-related emotion words such as “worry,” “anxiety,” “nervousness,” “paranoia,” and “panic”—each with their own subcodes under “emotions.” After fear, worry was the most common fear-related code (66%), followed by anxiety (55%), nervousness (48%), paranoia (31%), and panic (17%). Table 1 displays definitions, examples, and frequencies of codes and subcodes.

Other (Non-Fear) Emotions. Most participants (90%) also reported feeling emotions not related to fear. Overall, the “other emotions” code was the most frequent code after fear. Interviewees reported that crime makes them feel angry, annoyed, irritated, sad, disgusted, disappointed, violated, excited, empathetic, and compassionate, among others. Gina, 26, described intense anger, not fear, when watching someone attempt to break into her car: “I could feel my heart rate go up ‘cause I was so angry... that really aggravated me for, like, a couple weeks.” Many interviewees also reported feeling multiple emotions. Harry, 60, described how he would feel if someone stole his wooden go-kart: “I would feel sad. I would feel angry. There, you can add anger to the list. Yes, I would feel very angry.” Dave, 73, said, “I get disgusted, I get angry, it’s depressing. I don’t see any excuse for [crime]. I empathize with the victims.” He described feeling disgusted, angry, depressed, and empathetic all at once.

Unpleasant Affect

In addition to emotion words, interviewees used words related to unpleasant affect and not to any specific emotion. This includes words such as “upset,” “uncomfortable,” “uneasy,” and “bothered.” Unpleasant affect was the third most frequent code (79%) after fear and other (non-fear) emotions. Unpleasant affect was a common response to the

Table 1: Definitions and Examples of Codes and Subcodes

Code	Definition	Example Quotes	n (%)
Emotion	Interviewee used words that refer to an emotion concept.		
Fear	Interviewee used words such as fear, afraid, scared, terrified.	“I have always been afraid of being stabbed.”	29 (100%)
Worry	Interviewee used words such as worried, worrisome.	“So I’m not worried about my other citizens doing any damage to me. I’m worried about the police officers.”	19 (66%)
Anxiety	Interviewee used words such as anxiety, anxious.	“Kind of like anxious, well, yeah, I get anxious.”	16 (55%)
Nervousness	Interviewee used words such as nervous, nervousness.	“There was... possibly a lot of crime in my Oakland neighborhood. I would be nervous coming home.”	14 (48%)
Paranoia	Interviewee used words such as paranoia, paranoid.	“I think I go back and forth though between accusing myself of being too paranoid, um, or being not trusting of people and that sort of thing.”	9 (31%)
Panic	Interviewee used words such as panic, panicky.	“I have a little sense of panic. I mean I definitely felt panic when we were, um, threatened last year.”	5 (17%)
Other	Interviewee used other emotion words including sadness, anger, disgust, excitement, empathy.	“I could feel my heart rate go up ‘cause I was so angry.”	26 (90%)
Concern	Interviewee used words such as concern, concerns, concerning.	“I tend to be more concerned about violent crimes.”	20 (69%)
Unpleasant affect	Interviewee used words relating to unpleasant affect—such as uncomfortable, upset, bothered—but not to an emotion concept.	“I’d get very upset if I came home and found that somebody had broken in and stolen stuff.”	23 (79%)

Note. N = 29. Example quotes are brief excerpts from interviewees describing their feelings about crime.

question, “How does the possibility of crime make you feel?” For example, 33-year-old Franklin responded with “Um, uneasy.” Rita, 48, said, “Upset. Yeah, I don’t like an imbalance of power.” When answering an open-ended question, and not primed for fear, interviewees described a variety of nonspecific affective experiences in addition to specific emotional experiences.

Using Emotion Words Interchangeably

Most interviewees (69%) also reported feeling concerned about crime. Interviewees often used the words “fear,” “worry,” and “concern” interchangeably. For example, Olivia, 31, reported the following:

Say I watch a particularly scary movie and I’m afraid of someone in the apartment with me. It is more because I’m concerned about what happens when you confront someone in the midst of them committing a burglary... it is not because I am worried about, ‘You’re gonna take my TV’— I can get a new TV. It has more to do with, typically, most burglaries, when either the person—the homeowner walks in, or they attempt to break in while the homeowner is there, it ends— there is a

violent aspect to it. And it’s [the violence] that concerns me.

Her use of the words “afraid,” “concerned,” and “worried” as synonyms when talking about crime suggests that these are interchangeable in this context and thus all are related to the concept “fear of crime.” Similarly, Mona, a 54-year-old caretaker for her boyfriend who was violently assaulted, said, “It’s violent crimes that I, ya know, would worry about. Ya know, going out at night by myself, yeah that would be a crime I would be concerned with.” She, too, used worry” and “concern” as synonyms. Celia, 47, said, “the thing that would make me nervous is that [the city] does seem to have a lack of community fabric and I worry about, like, more people feeling disaffected and kind of like that erratic crime.” Similar to Olivia and Mona, she used “nervous” and “worry” interchangeably.

When probed further, interviewees often confirmed that the emotion words they used interchangeably felt the same to them. Dan, 41, stated that his fear of crime feels like “fear of the unknown.” The interviewer asked him to clarify: “So that fear feeling... is that a different thing than the anxiety that you mentioned before, or is that kind of the same thing for you?” He responded, “Probably the same.”

Qualitative Discussion

The variability of interviewees' emotional experiences with crime reveals some interesting considerations. First, the frequency of emotions that are not fear-related (e.g., anger, sadness, disgust) suggests that emotions toward crime depend on each person's interpretation of a criminal situation. This variability supports Warr's (2000) criticism of Ferraro and LaGrange's (1987) definition of fear of crime as a "negative emotional reaction" to crime. Our results suggest that this could mean anger, sadness, disgust, or other emotions depending on the person or situation. This finding resembles an Australian study that found anger/outrage to be the most common emotional response to incivility (e.g., harassment), followed by indifference, whereas only 14% of emotional responses involved fear/unease (Phillips & Smith, 2004). This finding also resembles Farrall's (2004) finding that participants were more likely to be angry about crime than fearful of crime. Put simply, it is possible that crime is not inherently frightening. Crime can be infuriating, sad, and disgusting in addition to (or instead of) frightening. As our interviewee Nancy, 67, put it, "I'm just aware that [my friends and I] could be walking together down the street and have totally different realities. Just totally different."

Second, the high frequency of interviewees that reported unpleasant affect (79%) when not specifically prompted for it suggests that fear of crime encompasses a nonspecific sense of unpleasantness in addition to specific emotions such as fear and anxiety. According to the theory of constructed emotion, unpleasant affect is a building block of negative emotions—a specific emotion may grow from affect when a particular context leads someone to construct that emotion.

Third, interviewees often used fear, concern, worry, nervousness, and anxiety synonymously, which indicates that these words may be conceptually conflated. This suggests that the concept "fear of crime" is related to all these feelings and emotions. The varying words that interviewees used synonymously to describe their fear of crime suggests that fear of crime seems to be an abstract concept similar to fear of the unknown (as our interviewee, Dan, stated), fear of commitment, fear of success, or fear of missing out. That is, fear seems to be a mental aversion that the perceiver has labeled "fear." For example, we cannot assume that someone's fear of commitment involves a specific physiological chain reaction involving sweating and increased heart rate—it is a diffuse, abstract feeling of apprehension or aversion that could be described using words like concern, worry, and anxiety. These qualitative

findings elucidate the definition of fear of crime. We further explored the fear of crime construct by using the qualitative findings to create our new fear of crime scale.

Stage 2: Creating Items

The purpose of our qualitative analysis was to generate content for a quantitative measurement scale. Questionnaire items were created using qualitative interview data in two ways—using both themes and statements from qualitative interviews. First, two items were created for each code: fear, anxiety, worry, nervousness, paranoia, panic, concern, and unpleasant affect. This is consistent with George and colleagues' (2006) method to develop a measure of nonadherence to chronic illness treatment.¹

Second, we generated items from interview data by using interviewees' own statements as question stems. For example, one interviewee stated, "I do think it's really scary, um, the possibility of being a victim of a crime," which we slightly modified for the following question stem: "The possibility of being a victim of a crime is really scary to me." A different interviewee stated, "I'm deathly afraid to go outside at night," which we used word for word as a question stem. In this way, interview transcripts were rich sources of items. Some question stems did not necessarily specify a particular emotion word, but did reflect the other ways in which interviewees described their feelings of fear, such as "I feel vulnerable to crime."

This approach enhances construct validity in two ways. First, question stems reflect actual participant experiences. Instead of assuming the experience of fear of crime, using interviewee's own words measures the construct in an authentic way (Creswell, 2009; Dawis, 1987). Second, using statements from interview transcripts allowed us to generate understandable question stems. Writing questions in lay language increases the readability, and thus validity, of the scale (Dawis, 1987).

Stage 3: Pretesting Items

We pretested the initial pool of questionnaire items with cognitive interviews and expert review. First, the interviewer conducted five cognitive interviews to refine question wording. The major purpose of cognitive interviewing is to assess whether or not participants interpret the items as the researchers intended (Dillman et al., 2014). During a cognitive interview, participants are asked to describe and elaborate on their thinking and decision-making while taking a survey (Dillman et al., 2014; Groves et

al., 2009). This process can take many forms, and there is no standardized protocol (Groves et al., 2009). In this study, we were concerned with question wording and relevance, so the interviewer instructed participants to pay close attention to those issues. The interviewer instructed participants to (1) read the question aloud, (2) paraphrase the question in their own words, (3) define key terms (e.g., fear, crime) in their own words, (4) narrate their logic behind choosing a response, and (5) describe their confidence in the answer they chose (Groves et al., 2009, p. 264). At any time, participants could ask questions about the intended meaning of an item or other concerns. Item wording was then adjusted according to participants' questions, concerns, or recommendations.

After cognitive interviews and adjustment to initial items, a preview of the survey was sent to seven experts on fear of crime with a request to review the items and provide feedback. The experts were chosen based on their extensive publication record on fear of crime, including fear of crime measurement. Expert review did not lead to any changes of the initial items.

Stage 4: Factor Analyses

We used Qualtrics Panels—an online data collection platform—to collect data for the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The only eligibility criteria for the survey were that participants must be at least 18 years old and must speak fluent English. We used quotas for gender and age because a pilot launch of the survey revealed that women and younger participants were overrepresented. The gender quota ensured no more than 60% women participants, and the age quota ensured a median age of 40. A correct answer to the attention check (“Select ‘somewhat untrue for me’ for this question”) was required.

Exploratory Factor Analysis

There were 305 participants for the EFA. The mean age was 42.5 years ($SD = 15.3$). Most participants (59.7%) were women. Most participants (73.1%) were White, followed by Black (13.4%), Latino (5.9%), Asian (3.6%), other/mixed race (3.0%), and Native American (1.0%). Participants' political affiliation was highly variable, with 28.8% being liberal, 44.3% being moderate, and 26.8% being conservative.

EFA was conducted in SPSS. All 36 initial items were normally distributed according to visual inspection of histograms as well as skewness and kurtosis values under 1.0. There were no missing data because Qualtrics required answers for all questions. Response options were 1 (*very untrue for me*), 2 (*untrue for me*), 3 (*somewhat untrue for me*), 4

(*somewhat true for me*), 5 (*true for me*), and 6 (*very true for me*). Negatively worded items were reverse coded before analyses.

Before EFA can be conducted, the determinant of the correlation matrix should reach a value above .00001 to avoid problems associated with multicollinearity (Field, 2018). To avoid multicollinearity, Field (2018) recommends eliminating variables with extremely high correlations (e.g., $r > 0.8$). To do this, we first ran an EFA model including all of the original items and removed the item with the highest average correlation with other items. Once that item was removed, we repeated this process several times until the determinant reached an acceptable value. Overall, 22 items with very high (e.g., $r > .80$) inter-item correlations were iteratively removed. Our final model was an EFA with maximum likelihood and oblimin rotation to identify the underlying factors that are measured by the remaining items. Four items were iteratively removed due to high cross-loadings with a second factor. Ten items remained.

The EFA yielded a single-factor solution according to eigenvalues, scree plot, and factor loadings. Factor 1 had an eigenvalue of 6.38 and was the only factor to have a value above the 1.0 threshold. Visual examination of the scree plot also supported a one-factor model. The single factor explained 63.75% of variance and had factor loadings ranging from .622 to .865. The internal consistency of the 10-item factor was $\alpha = .935$. Average scale scores were normally distributed according to visual inspection of the histogram and skewness and kurtosis values below 1.0. The final items (with their original item numbers) are below.

1. I'm afraid of a crime happening to me.
2. I feel vulnerable to becoming the victim of a crime.
3. The possibility that crime could happen to me is always in the back of my mind.
6. The possibility of crime gives me emotional stress.
14. Crime worries me in my day-to-day life.
15. I can't relax because of the possibility of crime.
28. My mind races trying to keep myself safe from crime.

33. I'm paranoid about my safety from crime.
34. Knowing that I could fall victim to crime makes me uncomfortable.
36. Crime makes me feel restless.

The remaining items in the single factor suggest that the concept "fear of crime" includes feelings of fear, concern, anxiety, worry, unpleasant affect, paranoia, and vulnerability. Although the words concern and anxiety do not appear in these items, the qualitative results suggest that fear, anxiety, and concern are synonyms in this context. The unidimensional result suggests that these words reflect the same underlying latent construct "fear of crime." The 10-item solution reflects sentiments expressed by interviewees and is a first step to accurately and parsimoniously measuring fear of crime.

Confirmatory Factor Analysis

We recruited a separate quantitative sample ($N = 360$) through Qualtrics Panels for the CFA. The mean age was 40.7 years ($SD = 14.3$). Most participants (52.4%) were women. Most participants (66.5%) were White, followed by Black (16.9%), Latino (6.6%), other/mixed race (5.5%), Asian (2.8%), Native American (1.1%), and Middle Eastern (0.3%). Participants' political affiliation was highly variable: 33.8% were liberal, 36.8% were moderate, and 28.9% were conservative.

CFA was conducted in R. A one-factor CFA model was conducted using the 10 items that were extracted from the EFA. Model fit was mixed according to Hu and Bentler's (1999) fit indices. The one-factor model showed poor model fit according to some indices ($\chi^2 = 228.94$, $p < .001$; RMSEA = .124) but other indices were acceptable (SRMR = .053) or marginally acceptable (CFI = .898).

While some of the fit indices suggested poor model fit according to Hu and Bentler's (1999) cutoff values, McNeish and colleagues (2017) found that the cutoffs may not be an appropriate measure of model fit. They found that Hu and Bentler's cutoffs tend to erroneously indicate poor model fit when measurement quality is high.² Accordingly, they recommend that standardized factor loadings should be reported along with fit indices to give more context and make fit indices more interpretable. The CFA revealed that standardized factor loadings were high, ranging from .715 to .888. Given the high standardized factor loadings, acceptable SRMR value (.053), marginally acceptable CFI value (.898), and high Cronbach's alpha (.945), we retained the one-factor 10-item scale extracted from the EFA.

Stage 5: Psychometric Validation

We tested for both convergent validity and divergent validity. Convergent validity depends on a high correlation between two measures of the same construct (Hinkin et al., 1997). Equally important to convergent validity is divergent (or discriminant) validity (Campbell & Fiske, 1959). When testing a new measurement scale, it is important to make sure that it not only positively and strongly correlates with other measures of the same construct (convergent validity) but also that it does *not* positively and strongly correlate with measures of different constructs (divergent validity; Campbell & Fiske, 1959; Clark & Watson, 1995).

Sample and Participants

Before assessing convergent and divergent validity, we combined both quantitative samples ($N = 305$ and $N = 360$) into a single sample ($N = 665$). The two samples differ only by completion date: 305 participants were sampled November 19–21, 2019, and the other 360 participants were sampled December 6–9, 2019. Table 2 shows descriptive statistics for the combined quantitative sample.

Measures Used for Scale Validation

In addition to the newly created 10-item fear of crime scale, participants completed measures of other constructs, which allowed us to test for convergent and divergent validity. Convergent validity requires a high positive correlation with previous fear of crime measures, and divergent validity requires a low to moderate or negative correlation with different but related constructs. To test for convergent validity, participants completed Ferraro's (1995) fear of crime scale and Cops' (2013) fear of crime scale. To test for divergent validity, participants completed measures of negative emotionality (Soto & John, 2017), belief in a just world (Lipkus et al., 1996), fear of death (Lester 1990), procedural justice (Gau, 2014), and trust in the police (Gau, 2014).

New Fear of Crime Measure

Our new fear of crime measure has 10 items (see *Exploratory Factor Analysis* above) on a 6-point Likert scale. Response options were 1 (*very untrue for me*), 2 (*untrue for me*), 3 (*somewhat untrue for me*), 4 (*somewhat true for me*), 5 (*true for me*), and 6 (*very true for me*). We computed a mean score for the scale. The internal consistency was $\alpha = .945$.

Table 2: Participant Demographics

Characteristic	<i>n</i>	%
Gender		
Men	293	44.1%
Women	370	55.6%
Other	2	.03%
Race/ethnicity		
White	463	69.6%
Hispanic/Latino	42	6.3%
Black/African American	101	15.2%
Middle eastern	1	0.2%
Asian	21	3.2%
Native American	7	1.1%
Other/mixed race	29	4.4%
Education		
Less than high school diploma	19	2.9%
High school diploma or GED	178	26.8%
Some college but no degree	198	29.8%
Associate's degree	106	15.9%
Bachelor's degree	110	16.5%
Master's degree	41	6.2%
Doctorate/professional degree	13	2.0%
Household income		
Less than \$19,999	117	17.6%
\$20,000 to \$39,999	196	29.5%
\$40,000 to \$59,999	141	21.2%
\$60,000 to \$79,999	83	12.5%
\$80,000 to \$99,999	41	6.2%
\$100,000 to \$119,999	33	5.0%
\$120,000 to \$139,999	15	2.3%
\$140,000 to \$159,999	8	1.2%
\$160,000 to \$179,999	9	1.4%
\$180,000 to \$199,999	2	0.3%
\$200,000 or more	7	1.1%
Don't know	13	2.0%
Victim of crime		
No	321	48.3%
Yes	320	48.1%
Unsure	24	3.6%

Homeownership		
Rent	326	49.0%
Own	326	49.0%
Other	13	2.0%

Political affiliation		
Very liberal	58	8.7%
Liberal	109	16.4%
Somewhat liberal	43	6.5%
Moderate	269	40.5%
Somewhat conservative	55	8.3%
Conservative	62	9.3%
Very conservative	69	10.4%

Religious affiliation		
Agnostic	59	8.9%
Atheist	54	8.1%
Buddhist	7	1.1%
Christian, Catholic	151	22.7%
Christian, Protestant	150	22.6%
Christian, other	166	25.0%
Jewish	11	1.7%
Muslim	8	1.2%
Other	58	8.7%

Neighborhood urbanicity		
Very rural	29	4.4%
Rural	138	20.8%
Suburban	274	41.2%
Urban	164	24.7%
Very urban	60	9.0%

Note. *N* = 665. Mean age was 41.5 (*SD* = 14.8).

Previous Fear of Crime Measures

We included Ferraro's (1995) 10-item fear of crime scale (see *Previous Measurement*) to assess convergent validity. We created three separate summary scores for the full scale (nine items), fear of property crime (four items), and fear of violent crime (four items). We excluded the item that asked about being approached by a panhandler from the property crime and violent crime subscales, which is consistent with Ferraro's original method. We also excluded the item asking about car theft, since some participants may not have a car.

We also included Cops' (2013) eight-item fear of crime scale with some revisions. Since some of his wording was leading (see *Previous Measurement*), we adjusted the language to minimize the chances of acquiescence bias. Though we did not exactly replicate Cops' (2013) scale, the adjusted language yielded a better measure and thus a better comparison for convergent validity.

Negative Emotionality

Negative emotionality is a personality characteristic that refers to one's tendency to experience frequent and intense unpleasant affect (Soto & John, 2017). Participants responded to 12 items on a scale from 1 (*very untrue for me*) to 6 (*very true for me*). We computed the mean of all items to create a single score for the scale.

Belief in a Just World

Belief in a just world (BJW) is a psychological construct referring to the belief that people get what they deserve and deserve what they get. Participants responded to eight items on a scale from 1 (*very untrue for me*) to 6 (*very true for me*). We summed each item to create a single score for the scale.

Fear of Death

Lester (1990) developed a fear of death scale that has four major components: dying of self, death of self, dying of others, and death of others. We only included items asking about dying of self and death of self. We excluded two items that ask about disease and degeneration of old age since they are not general enough to relate to fear of crime. Participants answered 13 questions on a scale from 1 (*very untrue for me*) to 6 (*very true for me*). We summed the two scales separately to create scores for each construct.

Global Procedural Justice and Trust in the Police

Gau's (2014) questionnaire measures both global procedural justice and police legitimacy. Global procedural justice refers to civilians' general perceptions of police officers' fairness and respect (Gau, 2014). Police legitimacy refers to perceptions of police as a legitimate authority (Sunshine & Tyler, 2003). Participants completed the four-item police legitimacy scale and the five-item global procedural justice scale on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). We computed a mean of each scale separately to create scores for each construct.

Psychometric Validation Results

To our knowledge, our fear of crime scale is the first to have been tested for convergent and divergent validity. Table 3 shows each scale's

Cronbach's alpha and correlation with our new scale. The correlations of our scale with previous fear of crime scales ranged from .640 to .718, which indicates convergent validity. The correlations of our scale with measures of different constructs ranged from $-.016$ (global procedural justice) to .444 (negative emotionality), which indicates divergent validity. A correlation of .444 between our scale and the negative emotionality scale indicates that, while fear of crime is associated with one's tendency to experience negative emotions in general, our scale is not measuring negative emotionality. These results provide evidence for both convergent and divergent validity.

General Discussion: Refining the Definition of Fear of Crime

In the long history of fear of crime research, conflicting definitions of fear of crime have emerged from several scholars. Furstenburg (1971) argued that fear of crime is distinct from concern and should instead be conceptualized as one's perceived risk of victimization. Ferraro and LaGrange (1987) agreed that fear of crime is distinct from concern, but Ferraro (1995) diverged from Furstenburg by distinguishing fear of crime from perceived risk. Garofalo (1981) defined fear of crime as a sense of anxiety, but Warr (2000) posited that anxiety and fear are distinct. Warr (2000) also argued that fear of crime research lacks clarity in definition and measurement.

To address Warr's (2000) call for terminological clarity and improved measurement, our research sought to resolve these differences by developing a new fear of crime scale using theory and rigorous methodology. Our study provides clarity in the sense that we have systematically uncovered what it means to fear crime. However, our research also revealed that fear of crime is a blurry construct without strict boundaries that deserves continued research attention.

Our results suggest that fear of crime is a complex mental construct. Fear of crime encompasses many emotion words including worry, anxiety, nervousness, paranoia, and panic as well as concern and unpleasant affect. This suggests that the attempt to distinguish between fear, worry, concern, and anxiety—at least in the context of fear of crime—may be unnecessary and perhaps impossible. In other words, each of these feelings is part of the emotional quality of fear of crime.

We argue that our qualitative results contradict Ferraro and LaGrange's (1987) contention that fear of crime is distinct from concern. Similarly, we disagree with Warr's (2000) argument that fear of crime is distinct from anxiety. Finally, Williams and McShane (2000) urged researchers to consider that

Table 3: Convergent and Divergent Validity Measures, Cronbach's Alphas, and Correlations with the Newly Created Fear of Crime Scale

Measure	α	r	p
New fear of crime scale	.945		
Convergent validity			
Fear of crime (Ferraro, 1995)	.952	.669	< .01
Fear of violent crime (Ferraro, 1995)	.950	.640	< .01
Fear of property crime (Ferraro, 1995)	.897	.678	< .01
Fear of crime (Cops, 2013)	.840	.718	< .01
Divergent validity			
Negative emotionality (Soto & John, 2017)	.896	.444	< .01
Belief in a just world (Lipkus et al., 1996)	.904	-.054	ns
Fear of death (Lester, 1990)	.765	.241	< .01
Fear of dying (Lester, 1990)	.568	.354	< .01
Police legitimacy (Gau, 2014)	.922	.018	ns
Global procedural justice (Gau, 2014)	.946	-.016	ns

fear of crime may actually be “worry victimization.” Our research suggests that fear cannot be distinguished from concern, anxiety, and worry in the context of crime. Our results revealed that people used the word “fear” interchangeably with “concern,” “anxiety,” and “worry,” which suggests that they are not conceptually distinct from fear in the context of crime. In fact, our qualitative results show that concern, anxiety, and worry, as well as nervousness, paranoia, and panic are all within the boundaries of fear of crime. Interviewees also used other words to describe their fear, including vulnerability and uneasiness. Thus, we present a new definition of fear of crime: the tendency to experience an affective or emotional response to crime (or the possibility of crime) that can include fear, concern, anxiety, worry, nervousness, paranoia, panic, vulnerability, and uneasiness.

Limitations

The most notable limitation to the current study is the convenience sample for the qualitative interviews. The measure was created from qualitative interview data from interviewees living in a mid-sized western U.S. city (with the exception of one participant who had recently moved). Our sample is not necessarily representative of the United States because participants were disproportionately White. Also, a quarter of the qualitative sample were law enforcement officers. However, police officers followed the same trends as other participants, namely the use of words such as “fear,” “concern,” and “anxiety” interchangeably.

A more racially diverse sample from a higher-crime city may have yielded different qualitative results, and thus a different item pool and a different resulting measure. The subjective experience of fear of crime may be different for racial/ethnic

minorities, so they may express their fear of crime differently when interviewed. It is also possible that the current measure would produce a ceiling effect for residents of high-crime areas, whereby most participants might score high on the measure due to insensitivity at the high end of the scale. That is, it is possible that people in a high-crime area would all score high on the current scale and that scores would not reflect true variability within high-crime neighborhoods (Passmore et al., 2002).

As with any fear of crime study, those who are most afraid of crime are perhaps the least likely to participate. In other words, those who are most suspicious of harm from strangers are least likely to agree to meet a stranger in an unfamiliar location to talk about crime. For example, when we advertised the study on nextdoor.com, someone commented, “Is it just me, or does this sound like a scam?” The first author messaged this person directly to further explain the study and encourage participation, but they did not respond. In this way, people who are the most fearful of crime may be virtually unreachable and thus not represented in the study.

An unavoidable limitation of the current study is that measurement of emotion is inherently difficult. As Barrett (2006) noted, “empirical evidence suggests that it is difficult, if not impossible, to find an objective means of measuring the experience of emotion” (p. 22). Emotions are difficult to define and difficult to measure. Our fear of crime scale was developed with a rigorous methodology, which improves construct validity, but because it attempts to measure emotional experience, it is inherently imperfect.

Another limitation was that the CFA model showed poor model fit according to Hu and Bentler's (1999) cutoffs for Chi-square and RMSEA values.

However, more recent research (Hancock & Mueller, 2011; McNeish et al., 2017) suggests that these conventionally accepted cutoff values are not valid indicators of model fit. As described above (see *Confirmatory Factor Analysis*), McNeish and colleagues (2017) found that higher measurement quality actually yields poorer model fit according to these cutoffs. If Hu and Bentler's cutoffs are not actually measures of model fit, researchers are left without standard criteria to evaluate their factor analyses. However, given the high standardized factor loadings (ranging from .715 to .888), high internal consistency ($\alpha = .945$), convergent and divergent validity, and theoretical foundation, we chose to retain the 10-item factor extracted from the EFA.

Future Directions

To our knowledge, our newly developed scale is the first of its kind in many ways. First, it is the first fear of crime scale to be created systematically from people's qualitative reports of their emotional experiences. Second, it is the first fear of crime scale to pretest items with cognitive interviews and expert review. Third, it is the first fear of crime scale that is informed by the theory of constructed emotion. Finally, it is the first to show evidence of convergent and divergent validity.

The current study is a first step, not a last step, in developing a high-quality measurement instrument for fear of crime. Future research should replicate and extend the current project, especially to remedy its limitations. A more diverse qualitative sample would be more representative of the United States.

Since the current fear of crime scale has been validated, a helpful next step would be to directly compare it with previous fear of crime scales. The correlation between the current scale and the two previous scales was high, which indicates convergent validity, but other statistical comparisons were beyond the scope of the current study. Since research has found high variability in results depending on the measurement used (Collins, 2016; LaGrange & Ferraro, 1989), future research should compare models using different fear of crime measures.

Future research should also examine predictors of fear of crime using the new scale. Negative emotionality had the highest correlation with fear of crime of any variable in the study. A fruitful line of research could investigate the relationship between personality characteristics and fear of crime.

Conclusion

The first major purpose of the current study was to reconceptualize fear of crime using an emotion theory. In previous researchers' attempts to define fear

of crime, none have used theories of emotion to inform their definitions and measurements (to our knowledge). The second major purpose was to develop a measurement instrument for fear of crime using data from qualitative interviews, which is also a novel approach. The current study makes significant theoretical and methodological contributions to fear of crime research.

Theoretically, this study introduced the theory of constructed emotion to the study of fear of crime. The wide range of interviewees' descriptions of their fear of crime is consistent with the theory of constructed emotion. Many interviewees conflated fear, worry, concern, and other emotion words, which illustrates the concept of emotional granularity. When someone uses words like "fear" and "concern" interchangeably, it suggests that that person's experience of those emotions is the same in that context. The theory of constructed emotion posits that emotions are subjective and depend on the present context, someone's previous experiences, and their understanding and use of emotion words. According to qualitative interviews, fear of crime encompasses many feelings including concern, unpleasant affect, worry, anxiety, paranoia, and panic. These findings will allow future research to further build theory on fear of crime.

Methodologically, the current study introduced a new self-report scale to measure fear of crime. This study was the first to apply the theory of constructed emotion and use qualitative data to create a fear of crime scale. The newly developed one-factor, 10-item scale captures the range of feelings and emotions that people used to describe their fear of crime including concern, worry, anxiety, and paranoia. This scale was also the first to undergo a rigorous factor analysis and validation process. In our sample, the scale had high factor loadings, internal consistency, convergent validity, and divergent validity. We constructed our scale with items that strengthened content validity and adhered to modern expectations in survey methodology (Dillman et al., 2014).

Fear of crime has profound effects at the individual, neighborhood, and national levels. At the individual level, low perceived safety and high fear of crime are associated with anxiety, depression (Stafford et al., 2007), poor sleep quality (Etopio et al., 2019; Hill et al., 2016), and physical health conditions (Cossman et al., 2016; Rader et al., 2020). At the neighborhood level, fear of crime can discourage governments and corporations from investing in poor areas, which can perpetuate the cycle of poverty (Sampson, 2012; Skogan, 1986). At the national level, fear of crime can shift priorities toward alleviating fear, sometimes at the expense of other national

programs. Our new fear of crime measure will allow researchers to more accurately examine the far-reaching effects of fear of crime. The current study is a first step toward a renewed understanding of the ways that crime and fear of crime impact our world.

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Endnotes

- ¹ Some of their items corresponded nicely with the interview themes, whereas others were not as straight-forward. The code labeled “Time with health professionals” directly matched their question stem “My doctors spend adequate time with me” (George et al., 2006, p. 53). However, the code labeled “Embarrassment” is only loosely related to its corresponding item “The management of my illness disrupts my life” (p. 53). Without access to their transcripts or coding, it is difficult to replicate their process of creating items.
- ² They found that an RMSEA value of .06 (considered acceptable) can indicate poor model fit when factor loadings are low (around .40), and an RMSEA value of .20 (considered unacceptable) can indicate good model fit when factor loadings are high (around .90). Hancock and Mueller (2011) found that once factor loadings reach a value above about .70, SRMR, RMSEA, and CFI yield values below the conventionally acceptable cutoffs. McNeish et al. (2017) warned that fit indices depend on factor loadings the way p values depend on sample size.

Appendix: Interview Guide

Numbered questions were the major questions of interest for the interview. Bullets underneath numbered questions indicate potential follow up questions to get more detail.

1. I'm interested in your experiences, feelings, and thoughts about crime. For all responses, I'd like you to be as detailed as possible. To start, I'm going to ask you a bit about yourself. Could you describe a typical day for you?
2. How do you feel about living in [this city]? How long has it been?
 - Follow up: In your neighborhood? In your previous neighborhood/city?
3. I'm going to shift topics a little bit if that's okay. What are your thoughts about crime in general?
 - Follow up: In [this city]? In your neighborhood? Nationally?
4. Could you tell me what you think when you hear about crime happening to other people?
 - Follow up: What's going on in your head?
 - Follow up: How does it feel?
5. How safe do you feel being outside and alone in your neighborhood at night? Day?
6. How vulnerable do you think you are to becoming the victim of a crime? How likely is it that you could become the victim of a crime in the near future?
7. How does the possibility of crime make you feel?
 - Follow up: What emotions come up?
 - Follow up: How often do you think about it?
8. Do you fear crime? How often?
9. What does it feel like when you are afraid of crime?
10. In what situations do you fear crime the most?
 - Follow up: What goes through your head in those moments?
11. What crimes are you most afraid of (concerned about)?
 - Follow up: Violent crimes like assault?
 - Follow up: Property crimes like theft or burglary?
12. What do you think makes you feel the way you do about crime? What led to how you feel now?
13. Have you ever been the victim of any kind of crime? (You don't have to answer if you don't want to.)
 - Follow up: Explain what happened.
 - Follow up: Did you call the police?
14. What do you think would happen if you became the victim of a crime?
 - Follow up: How serious would it be to you? Could you walk me through that?
15. Is there something else you think I should know? Could be something you forgot to say or something I didn't ask.