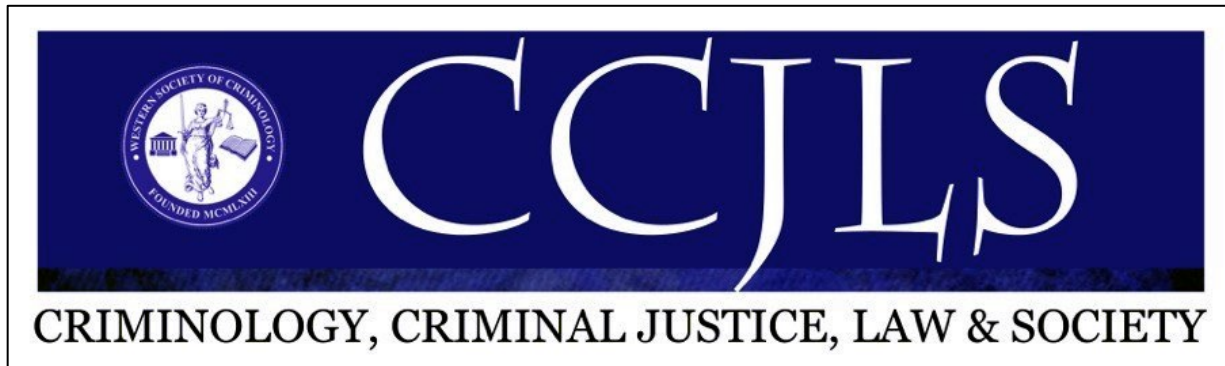




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Gender Invariance Testing of a Fear of Victimization Scale

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ABSTRACT AND ARTICLE INFORMATION

Gender differences among fear of victimization have been well-established such that women are generally more afraid of all types of victimization than men. This is paradoxical given that women historically have been less likely to be victimized than men with few exceptions (i.e., interpersonal violence crimes, such as sexual assault and domestic/dating violence). This difference is supported by the Uniform Crime Report (UCR) and National Incident Based Reporting System (NIBRS) data, although data from the National Crime Victimization Survey (NCVS) has more recently shown that the difference between male and female violent victimization is statistically nonsignificant (Thompson & Tapp, 2022). The ‘shadow of sexual assault’ hypothesis suggests that women’s heightened fear is due to their increased likelihood for sexual victimization. While there is empirical support for this hypothesis, there is a gap in knowledge pertaining to whether fear of victimization is due to a gendered effect or if the scales being used to measure fear are non-invariant. In other words, are the questions about fear of victimization viewed the same way by both men and women? Using a fear of victimization scale from a dataset that surveyed a jail sample, invariance testing was conducted to determine if the scale would reveal invariance between men and women. Findings show that the fear of victimization scale from this survey, once fear of sexually-motivated crimes was removed, is appropriate for continued use, at least in determining differences between males and females. Implications of these findings are discussed along with directions for future research.

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Fear of victimization is an important emotional response with many contributing factors. For instance, people's fears vary depending on variables such as race, age, gender, environmental/location features, and past victimization experience, among others (Henson & Reyns, 2015). Research on fear of victimization is important for understanding not only who is afraid of being victimized but also the reactions people have to fear that may alter their everyday routines. People sometimes alter their routines based on fear of victimization in ways that may increase their likelihood for future victimization (Engström & Kronkvist, 2018; Turanovic & Pratt, 2014; Vilalta, 2016). Such alterations include joining a gang and purchasing firearms. Fear of victimization is also important to study given that it can lead to negative health effects including post-traumatic stress symptoms and substance use and abuse (Liska et al., 1982). Despite a large body of literature on fear of victimization, there are bound to be many unresolved questions that researchers could address. One such unresolved question is whether survey questions about fear of victimization are viewed the same way by both men and women. That is to say, do men and women interpret questions regarding their fear of being victimized based on gendered experiences (e.g., past physical or sexual victimization)? If so, are researchers drawing incorrect or misguided conclusions from existing fear of victimization datasets?

Invariance tests of fear of victimization scales can answer this question. Specifically, if non-invariance is discovered, this could mean that (a) men and women have different interpretations of fear survey questions or (b) either men or women did not correctly understand what latent factor the survey questions were attempting to reveal. This, then, may mean that the differences between men and women are not based on different levels of fear but that men and women intrinsically interpret the questions differently. Therefore, it is important to conduct invariance testing on fear of victimization scales to ensure the validity of the scale.

The current study performs invariance testing on an extensively used fear of victimization scale to determine if there are true gender differences between men's and women's fear of victimization. This study conducts a confirmatory factor analysis framework. First, a one-factor model was tested to identify whether gender differences exist among a summed total of victimization types. This will serve as the latent factor. The test will then be replicated with the "fear of rape" question removed to account for the potential effects of the shadow of sexual assault hypothesis. Next, a three-factor model will be used to

see if there is invariance between men and women after the latent factor of fear is divided into three subfactors: (1) fear of violent victimization, (2) fear of property victimization, and (3) fear of gang-related victimization. The separation of gang-related victimization is supported by recent literature on gang-related crime perpetration and victimization (Gagnon, 2018; Lane & Fox, 2012, 2013; Lane & Meeker, 2003a).

Consistent with the one-factor model, the three-factor model will be used with the "fear of rape" variable removed from the fear of violent victimization subfactor. The anticipated results for the one-factor model are that invariance will be found, but that invariance will be stronger once the "fear of rape" variable is removed. The anticipated results for the three-factor model are the same: The model will have invariance, but that invariance will be stronger once the "fear of rape" variable is removed from the fear of violent victimization subscale. Finally, a chi-square difference test (DIFFTEST) was conducted on the two models to test the fit of the models. It is further anticipated that the three-factor model will be a better overall fit than the one-factor model. Findings will be supported by presenting the chi-square results to examine the parsimonious fit of the models, the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) results to examine the incremental fit of the models, and root mean square error of approximation (RMSEA) results to examine the absolute fit of the models, as well as the factor loadings for the model with the best fit.

Background

Fear Versus Risk of Crime

Before reviewing the literature on fear of crime, it is important to note the distinction between an individual's *fear* of crime and an individual's perceived *risk* of crime (Chon & Wilson, 2016; Franklin et al., 2008). Briefly, fear of crime is an affective conceptualization while risk of crime is a cognitive conceptualization (Bolger & Bolger, 2019). More specifically, this study looks specifically at respondents' answers to "fear of crime" questions, that is, how much the individual is afraid that they will experience various crime types, or in other words, whether the thought of being victimized causes an emotional reaction. "Risk of crime," on the other hand, is interested in the respondents' answers to questions regarding their perception of the likelihood of experiencing various crime types in the future.

While research on these two areas often overlap, it is important to note that they are two distinct

concepts (Chon & Wilson, 2016), not just in term, but in applied research as well. For example, studies have determined that risk of fear can predict fear of crime (Ferraro, 1995; Jackson, 2011; Wyant, 2008). This is depicted by Warr's (1987) "sensitivity to risk" model, which assumes a relationship between risk and fear where '0' is a lack of fear, the 'slope' is the rate that fear and perceived risk increase together, and where '10' is the greatest level of fear produced. This relationship, according to Warr, varies based on the seriousness of the crime type.

Other studies that have separated "fear of crime" from "risk of crime" have supported this affective versus cognitive concept distinction. For example, research shows that construal level theory (CLT) provides an explanation for the psychological processes that shape an individual's perception of "fear of crime" and "risk of crime" (Chadee et al., 2019; Mellberg et al., 2022). Further research that has distinguished "fear of crime" from "risk of crime" has supported the separation of the two concepts and has also included clarification regarding the difference between the two in empirical surveys (Kariuki & Barkhuizen, 2021). For example, studies that have included questions separating "fear of crime" from "risk of crime" have found significant results amongst university student populations, international populations, and gang populations (Chadee et al., 2017; Gagnon, 2018; Krulichová, 2019; Lane & Fox, 2012; Shi, 2021).

Demographic and Environmental Differences for Fear of Victimization

Studies on the fear of victimization reveal differences across groups based on demographic characteristics, including race and age. For example, Black people have been found to be more fearful than White people (Callanan, 2012; Deluca et al., 2021; Ortega & Myles, 1987). This may be due to the racial composition of neighborhoods, population density, systemic racism, and oppression against Black people (Alexander, 2021; Eichstaedt et al., 2021; Liska et al., 1982; Scarborough et al., 2010). Another characteristic that explains differences in fear is age. In addition to racial differences, studies show that older people are generally more likely to be afraid of victimization than those who are younger (Braungart et al., 1980; Lane & Fox, 2013; Warr, 1984; Weinrath, 2000). However, some studies suggest that this may be a misinterpretation due to measurement error (Ferraro & LaGrange, 1992; LaGrange & Ferraro, 1989). Specifically, it has been found that it is more likely the variation in how fear of crime is measured in numerous studies (e.g., the affective versus cognitive concept distinction) that accounts for these differences. Therefore, it has been argued that the

elderly are no more or less afraid of crime than younger individuals (Ferraro & LaGrange, 1988). Relatedly, evidence shows that individuals do not grow more fearful of crime as they get older (Powell, 2022). Other studies suggest that the link between fear and age is influenced by other factors, such as their perceived risk of victimization, race, and gender (Acierno et al., 2004; Henson & Reyns, 2015; McKee & Milner, 2000).

Fear of victimization is also impacted by environmental and behavioral factors, including features of the cities in which individuals reside and experiencing prior victimization. For example, residents of largely populated cities tend to be more fearful of victimization than those who live in cities with relatively low populations (Clemente & Kleiman, 1977; Nalla et al., 2011). Fear of victimization is also influenced by the rate of crime in an individual's neighborhood such that higher crime rates are associated with more fear of victimization (Alehiba, 2015; Liska et al., 1982). Also, perceived racial composition of the neighborhood has been found to increase peoples' fear of victimization (Chiricos et al., 1997; Glas et al., 2021). More specifically, the association between fear and perceived racial composition (e.g., subcultural diversity) operates differently among different racial groups. Among people incarcerated in jail, subcultural diversity was significantly related to fear of property crime among Black and White people and fear of personal crime among Black people (Lane & Fox, 2020). Individuals who have experienced victimization in the past also experience increased fear of future victimization (Ferraro, 1995; Karakus et al., 2010). Furthermore, people with prior victimization histories significantly altered their daily routines as a reaction to this fear (Engström & Kronkvist, 2018; Mesch, 2000; Vilalta, 2016). Some studies suggest that property victimization experiences, rather than violent victimization experiences, most heavily influence fear of future victimization (Lee et al., 2020; Smith & Hill, 1991). Other studies suggest that the effects of victimization on fear are more mixed (Lane et al., 2014).

Gender and Fear of Victimization

One of the strongest predictors for fear of victimization is gender (Henson & Reyns, 2015; Rader & Haynes, 2011). Specifically, women are significantly more afraid of victimization than men. Some studies point to past victimization experience as the reason for this increased fear (May et al., 2010). Such an interpretation should be made tentatively as past victimization experiences may be tapping more into a woman's perceived risk of victimization and not necessarily fear of victimization. Still, there is the

potential that perceived risk can result in increased fear.

Women are more likely to experience sexual assault than men, increasing their fear of all crime types. Sexual victimization then becomes women's "master offense"—the crime type which most influences perceptions of risk and fear of other crime types. In other words, as the likelihood of experiencing sexual assault is higher for women than men, women will be more fearful of sexual assault, leading to a heightened fear of other, non-sexual victimization among women compared to men (Ferraro, 1996; Tjaden & Thoennes, 1998, 2000). Given that women are significantly more likely than men to be victims of sexual violence, it follows that women may be more fearful of sexually-motivated victimization. However, studies find that women are more fearful of *all* types of victimization than men, not only sexual assault (Braungart et al., 1980; Clemente & Kleiman, 1977; Fox et al., 2009; Mellgren & Ivert, 2019). Still, recent work suggests that this gender gap may be narrowing over time (Lu et al., 2021). In fact, men's fear of nonsexual victimization has also been found to increase when the risk of sexual victimization is introduced (Choi et al., 2020). More recent research tends to suggest that it is not the fear of sexual assault that influences men and women's fear of other types of victimization, but that the fear of assault—or body-aimed victimization—influences the rate of fear of crime among both men and women (Britto et al., 2018; Hernández et al., 2020; Lane & Meeker, 2003b; Ugwu & Britto, 2015).

The shadow of sexual assault hypothesis suggests that the reason women are more fearful of all types of victimization than men is because the prevalence of sexual assault directly affects their fear of all other crime types (Ferraro, 1996). The most common explanation of this phenomenon is that sexual assault and rape are "perceptually contemporaneous crimes." That is, sexual victimization can be presumed likely to occur during the commission of other crimes, even if not typically concurrent, such as, for example, in the case of breaking and entering (Gordon & Riger, 1989; Hirtenlehner et al., 2023; Mellgren & Ivert, 2019; Riger et al., 1978; Warr, 1984; Ugwu & Britto, 2015). While still somewhat limited, research on the shadow of sexual assault provides support for this hypothesis (Britto et al., 2018; Fisher & Sloan, 2003; Hilinski, 2009; Lane & Fox, 2013; May, 2001). Due to the likely influence of the shadow of sexual assault on women's responses to fear of victimization surveys, it may be pertinent to remove fear of sexual assault from fear of victimization scales and instead separately address this crime type, especially in studies concerned with fear of victimization and gender.

The extant literature on fear of crime is largely drawn from the general public, which leaves a gap in knowledge about fear of victimization among people who commit crime. Incarcerated gang members reported significantly less fear of victimization compared to non-gang members (Lane & Fox, 2012). Gang members' fear also decreases as their time as a gang member increases (Lane & Fox, 2012). That gang members have less fear is paradoxical given that gang members are at greater risk for victimization, a fact which most gang members acknowledge (Lane & Fox, 2012).

To date, only one known study has been conducted on a fear of crime scale to determine if invariance exists based on gender. Callanan and Teasdale (2009) published foundational work that examined two fear of crime studies conducted in California. The first study, the Southern California Fear of Crime Study, examined a four-item scale to measure fear of crime, and response options ranged on a Likert scale from 1 (strongly disagree) to 6 (strongly agree). The questions in this scale asked respondents if they "worry a great deal about my personal safety from crime and criminals," "worry a great deal about the safety of my loved ones from crime and criminals," "worry about the safety of my property," and asked if "there is reason to be afraid of becoming a victim of crime in my community."

The second study, the Statewide California Fear of Crime Study, used an eight-item scale to measure fear of crime and utilized response options on a Likert scale ranging from 0 (not at all fearful) to 10 (very fearful). The questions asked respondents how fearful they were of "being burglarized while at home," "being burglarized while away," "being attacked with a weapon," "auto theft," "being robbed or mugged," "being sexually assaulted or raped," "having their property vandalized," and "their loved ones becoming a victim of crime." The inclusion of multiple crime types in both studies is important as it reflects the findings of extant literature that fear of crime varies by crime type (Alper & Chappell, 2012; Lee et al., 2020; Rountree & Land, 1996). Further, neither study clarifies the difference between fear and risk of crime (Kariuki & Barkhuizen, 2021; Rountree & Land, 1996; Warr, 1987).

The authors found non-invariance in both the Southern California Fear of Crime Study and Statewide California Fear of Crime Study. Drawing from research on the shadow of sexual assault, Callanan and Teasdale (2009) conducted another invariance test on the second survey with fear of rape and sexual assault removed, and the analysis revealed that the scale remained non-invariant.

Contributions of the Current Study

The current study contributes to the fear of victimization literature in several ways. First, this study is one of the first known invariance tests of fear of victimization between incarcerated men and women. The only known study to examine the invariance in fear of victimization across gender was published over a decade ago and examined a non-incarcerated population (Callanan & Teasdale, 2009). Second, we test invariance in fear of victimization by gender using comprehensive fear of victimization scales comprised of 20 items that employ a four-point Likert scale ranging in level of fear. This expands upon prior literature that examines fewer items (e.g., Callanan & Teasdale, 2009). Finally, the current study examines fear of victimization among a large sample of people incarcerated in jail. People in jail represent a heterogeneous sample of people exhibiting wide ranges of offending intensity, duration, and severity and include those who were detained, awaiting trial, and convicted. Given the diversity of people in jail, this setting is ideal for examining variation in fear. This fills an important gap in the literature given that few studies examine fear among offenders and particularly among those incarcerated.

The purpose of this study is to test whether there are true gender differences between male and female respondents in terms of their fear of victimization. The first anticipated result is that for both the one-factor and the three-factor model, invariance will be found between males and females. The second anticipated result is that this invariance will become stronger through the removal of 'fear of rape' items from the scale. To test these expectations, a scale measuring fear of victimization taken from a jail sample survey will be analyzed.

Method

Hypotheses

1. Invariance will be found between males and females in the one-factor model.
2. Invariance will become stronger after the variable measuring 'fear of rape' is removed from the analysis of the one-factor model.
3. Invariance will be found between males and females in the three-factor model.
4. Invariance will become stronger after the variable measuring 'fear of rape' is removed from the analysis of the three-factor model.

Data Collection

The dataset used for this study comes from a self-administered survey that was distributed to jail inmates at 14 of the largest jails in the state of Florida. Participation in the survey was voluntary and anonymous. The survey was administered in both English and Spanish. The survey included a wide range of demographic and theoretical variables. Demographic variables included gender, race, ethnicity, age, education level, income, and number of children. Theoretical variables consisted of scales that captured information regarding leading criminological theories such as social disorganization and self-control. The survey also included questions aimed at eliciting information about inmates' gang membership, perpetration of crime, victimization experiences, perception of victimization risk, and fear of victimization.

Participants

In all, 2,414 people incarcerated in the jails completed the survey. The sample consisted mostly of males ($N = 1746$, 75%). Regarding race, participants were 42% White ($N = 991$), 41% Black ($N = 956$), and 21% Hispanic ($N = 478$). The participants were relatively young on average (mean = 32) with a range in age from 18 to 84. Regarding education, 35% of participants reported having finished high school or obtaining a general educational development (GED) degree ($N = 825$). Also, 49% ($N = 1,225$) reported that they had a full-time job prior to incarceration. Finally, 85% of the sample claimed no gang affiliation ($N = 2020$).

Measures

Fear of Victimization. One latent factor was created by combining all 20 fear of victimization items into one additive index (fear). These items were theft, vandalism, robbery, threatened without a weapon, attacked with a weapon, attacked with a weapon, sexually assaulted or raped, stabbed, shot at but not hit, shot, killed, carjacking, witness intimidation, home invasion, graffiti, drive by shooting, attacked or assaulted by a gang member, and harassed by gang member. The wording of each question is included below in the subfactors sections delineating fear of victimization by crime types (i.e., property victimization, violent victimization, and gang-related victimization). Responses for each ranged from 1 (not afraid) to 4 (very afraid).

Fear of Property Victimization. The fear of property victimization scale consisted of two items combined to create an additive index (*FearProp*). The questions asked, outside of jail, how personally afraid participants were of "having your money or property

be stolen from you without force” (*ftheft*) and “having your property damaged or vandalized” (*fvand*). Responses ranged from 1 (not afraid) to 4 (very afraid).

Fear of Violent Victimization. The fear of violent victimization scale consisted of nine items combined to create an additive index (*FearViol*). These items asked, outside of jail, how personally afraid were participants of “having your money or property be stolen from you with force” (*frob*), “being threatened with a weapon” (*ftww*), “being attacked without a weapon” (*fawow*), “being attacked with a weapon” (*faww*), “being sexually assaulted or raped” (*frape*), “being stabbed” (*fstab*), “being shot at, but not hit” (*fshotat*), “being shot” (*fshot*), and “being killed” (*fkil*). Responses ranged from 1 (not afraid) to 4 (very afraid).

Fear of Gang-Related Victimization. The fear of gang-related victimization scale consisted of nine items combined to create an additive index (*FearGang*).¹ These questions asked, outside of jail, how personally afraid participants were of “being the victim of a carjacking” (*fcar*), “being threatened by someone who did not want you to act as a witness in court” (*fwi*), “being the victim of a home invasion” (*fhome*), “having your property damaged by gang graffiti or tagging” (*fgraf*), “having someone breaking into your home while you are away” (*fbreak*), “having a gang member commit a home invasion robbery against you” (*fghome*), “being a victim of a drive-by or random gang-related shooting” (*fdriv*), “being attacked or assaulted by a gang member” (*fgatt*), and “being harassed by a gang member” (*fgharass*). Responses ranged from 1 (not afraid) to 4 (very afraid).

Sex. Inmates’ sex (*sex*) was determined by their response to the question “what is your sex?” Response options were 1 (male) and 2 (female).

Plan of Analysis

The variable *sex* was compared to a one-factor model where the 20 fear of victimization items were combined to create one latent factor (*fear*). Configural, metric, and scalar models were used to test invariance. All three models were used to increase the parameters of the model, thereby creating a more restricted model. Reports will present Chi-Square, CFI, TLI, and RMSEA to assess the results of the invariance test. The same procedure will be subsequently conducted,

but this time, with ‘fear of rape’ (*frape*) removed from the latent factor in order to isolate the effects of the shadow hypothesis.

The variable *sex* was then compared to a three-factor model where the twenty fear of victimization items were split into three subfactors: fear of property victimization (*FearProp*), fear of violent victimization (*FearViol*), and fear of gang-related victimization (*FearGang*). Once again, configural, metric, and scalar models were used to test invariance. Chi-Square, CFI, TLI, and RMSEA was reported to assess the results. This process was replicated with *frape* removed from the *FearViol* subfactor, in line with suggestions from the shadow of sexual assault hypothesis research. A chi-square difference test was also conducted to determine the model with the best overall fit.

Results

One-Factor Model

The first hypothesis states that invariance should be found between males and females in the one-factor model. Table 1 shows that the one-factor model has invariance at the metric against configural level. However, as the model becomes more restrictive, the scale reveals non-invariance. This is further confirmed by the fit indices results as shown in Table 2. Specifically, for each model, the chi-square is significant, and the RMSEA is too high (i.e., above 0.10). Interestingly, the CFI and TLI both indicate that the model has a good overall fit (i.e., above 0.95), thus partially supporting Hypothesis 1.

The second hypothesis states that invariance should become stronger after the variable measuring ‘fear of rape’ was removed from the analysis of the one-factor model. Once *frape* was removed from the latent factor (*fear*), the model showed invariance at the metric against configural level and remained through the increasingly constrained levels (see Table 3). In Table 4, one can see that this is further supported by the high CFI and TLI (i.e., above 0.95). However, the chi-square remained significant, and the RMSEA was still too high (i.e., above 0.1) to support invariance. Overall, the best one-factor model is the model with the question regarding sexual assault and rape removed from the latent factor, supporting the second hypothesis.

Table 1. Model fit indices across gender for *fear*

	ΔX^2	<i>df</i>	<i>p</i>
Metric against Configural	21.307	19	0.3201
Scalar against Configural	202.361	77	0.0000
Scalar against Metric	173.290	58	0.0000

Table 2. Model fit across gender for *fear*

	X^2	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA
Configural	5750.74	340	0.001	0.976	0.974	0.123
Metric	5683.18	359	0.001	0.977	0.975	0.118
Scalar	5027.78	417	0.001	0.98	0.982	0.102

Table 3. Model fit indices across gender for *fear, frape* removed

	ΔX^2	<i>df</i>	<i>p</i>
Metric against Configural	20.277	18	0.3175
Scalar against Configural	91.990	73	0.0659
Scalar against Metric	71.543	55	0.0662

Table 4. Model fit across gender for *fear, frape* removed

	X^2	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA
Configural	5546.84	304	0.001	0.976	0.973	0.128
Metric	5476.27	322	0.001	0.977	0.975	0.123
Scalar	4723.77	377	0.001	0.98	0.982	0.104

Three-Factor Model

The third hypothesis states that invariance should be present between males and females in the three-factor model. Table 5 shows that the three-factor model has invariance at the metric against configural level. However, as the model becomes more restrictive, the scale reveals non-invariance. This is

further confirmed by the fit indices results as shown in table 6. Specifically, for each model, the chi-square is significant, and the RMSEA is too high (i.e., above 0.10). Note, however, that the RMSEA does fall into “acceptable fit” range at the scalar level. Interestingly, the CFI and TLI both indicate that the model has a good overall fit (i.e., above 0.95), thus partially supporting Hypothesis 3.

Table 5. Model fit indices across gender for *FearProp*, *FearViol*, *FearGang*

	ΔX^2	<i>df</i>	<i>p</i>
Metric against Configural	18.887	17	0.3351
Scalar against Configural	191.976	73	0.0000
Scalar against Metric	166.652	56	0.0000

Table 6. Model fit across gender for *FearProp*, *FearViol*, *FearGang*

	<i>X</i> ²	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA
Configural	5420.08	334	0.001	0.978	0.975	0.12
Metric	5333.56	351	0.001	0.978	0.976	0.116
Scalar	4660.53	407	0.001	0.981	0.983	0.099

The fourth hypothesis states that invariance should become stronger after the variable measuring ‘fear of rape’ was removed from the analysis of the three-factor model. Once *frape* was removed from the fear of violent victimization subfactor (*FearViol*), the model showed invariance at the metric against configural level and remained through the increasingly constrained levels as shown in Table 7. In Table 8, one can see that this is further supported by the high CFI

and TLI (i.e., above 0.95). However, the chi-square remained significant and the RMSEA was still too high (i.e., above 0.1) to support invariance. Overall, the best three-factor model is the model with the question regarding sexual assault and rape removed from the fear of violent victimization subscale. This is supported by the factor loadings between each group itself, supporting Hypothesis 4.

Table 7. Model fit indices across gender for *FearProp*, *FearViol*, *FearGang*. *Frape* removed

	ΔX^2	<i>df</i>	<i>p</i>
Metric against Configural	17.909	16	0.3292
Scalar against Configural	86.911	69	0.0714
Scalar against Metric	68.874	53	0.0703

Table 8. Model fit indices across gender for *FearProp*, *FearViol*, *FearGang*. *Frape* removed

	<i>X</i> ²	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA
Configural	5196.42	298	0.001	0.978	0.975	0.125
Metric	5105.58	314	0.001	0.978	0.977	0.12
Scalar	4348.08	367	0.001	0.982	0.983	0.101

Chi-Square Difference Test

To estimate which model had the best overall fit, a chi-square difference test was conducted. The results in Table 9 show that the more restricted model (i.e., the

three-factor model) has a better overall fit. This is shown by the smaller chi-square number in the difference test compared to the chi-square model fit test.

Table 9. Difftest for three-factor model, *frape* removed

	χ^2	<i>df</i>	CFI	TLI	RMSEA
Chi-Square Test of Model Fit	94522.690	151	-	-	-
Chi-Square Test for Difference Testing	13333.340	2	0.626	0.576	0.535

Discussion

Based on the results of this study, the three-factor model emerged as the best overall fit for the fear of victimization scale. Hypothesis 1 (i.e., invariance should be found between males and females in the one-factor model) and Hypothesis 3 (i.e., invariance should become stronger after the variable measuring ‘fear of rape’ was removed from the analysis of the one-factor model) are not supported. That is, when the item that asks respondents about their fear of rape or sexual assault is present, invariance is not found between males and females. However, Hypothesis 2 (i.e., invariance should be found between males and females in the three-factor model) and Hypothesis 4 (i.e., invariance should become stronger after the variable measuring ‘fear of rape’ was removed from the analysis of the three-factor model) are supported. That is, when the item that asks about fear of rape or sexual assault is removed from the model, invariance is found between males and females.

Implications from this finding are two-fold. First, invariance can be found between males and females using this scale if *frape* is removed. This means that the scale used in this study reveals true gender differences regarding fear of victimization. Stated differently, the inclusion of the ‘fear of rape’ item was found to uniquely influence women’s responses to the other items in the fear scale. Were ‘fear of rape’ omitted, the difference between men and women’s responses to the rest of the fear scale could be better interpreted. Our findings support the future use of this scale, with the sexual assault item removed. Second, the findings from this study provide support for the

shadow of sexual assault hypothesis. Specifically, only when *frape* was removed from the model was invariance found, which indicates that women fear victimization overall more so than men due to their fear of sexual assault, and that impacts their responses to fear of victimization questions significantly. The conclusion that fear of sexual victimization is so influential to women’s fear of all victimization should be considered alongside of the recent literature that has found that it is the fear of physical assault—or body-aimed victimization—that may serve as the true “master offense” when estimating one’s fear of victimization (Britto et al., 2018; Cook & Fox, 2012; Hernández et al., 2020; Lane & Meeker, 2003b; Ugwu & Britto, 2015). Future research may consider expanding upon the above findings by further evaluating the influence of fear of physical victimization versus fear of sexual victimization and their influence on overall fear of crime.

These findings suggest that fear of rape and sexual assault should be measured separately from future studies using fear of victimization scales. A potential fix to the omission of such an important variable would be to create a fear of sexual victimization scale. Such a scale separated from a fear of victimization scale may allow for gender differences to be revealed through the fear of victimization scale, while allowing researchers to study the influence of fear of sexual assault, especially for women.

Reasons for this gendered difference in fear of victimization have been hypothesized. In addition to the shadow of sexual assault hypothesis, women may report more fear of victimization as women may be conditioned to be more aware of their surroundings. In other words, women’s heightened perception of risk

could, in turn, increase their fear of victimization (Bam, 2019; Meyer & Post, 2006; Warr, 1984). An alternative hypothesis to explain gender differences in fear of victimization may be that males underreport their fear due to socialized ideologies about masculinity. This may be especially true among a sample of people incarcerated in jail given that this population may perceive that expressing fear may increase their vulnerability and compromise their “street cred” (Anderson, 2000). Even so, not all people incarcerated in jail have committed a crime, and some may be incarcerated for other reasons (e.g., while awaiting trial or wrongly incarcerated). Future research is needed to test these two hypotheses, and others, in an attempt to understand the gendered differences of an invariance validated scale.

Future research is also needed to test the fear scale examined herein for invariance based on other available demographic variables such as race, education level, income, and gang membership. However, invariance testing of gang versus non-gang members may be limited due to the considerable proportion of non-gang members in the sample. This may be corrected by comparing gang and former gang members since the literature indicates that there are significant differences between the two groups (Decker et al., 2014; Liverso & Matseuda, 2019; Pyrooz et al., 2021). If such a study were to be conducted, it could provide a foundation for other studies interested in expanding the research on gang members’ fear of victimization. Future research should also further test the invariance of the perceived risk of victimization scale that was included in this survey.

It is important to consider that participants were asked to recall their fear prior to incarceration, and this may have resulted in memory decay for some participants. Jails are designed to house people for short periods of time (less than one year), and the majority of the sample were incarcerated for short periods of time (e.g., 60% were incarcerated for 90 days or less). This means that participants were asked to recall experiences from relatively recently and were likely able to recall their life experiences easily, yet it is possible that some participants may have experienced challenges in doing so. Indeed, people incarcerated in jails necessarily have more experience with crime and victimization, and while this is an important population to understand, the findings are not generalizable to other populations.

In conclusion, the current study is the first known study to conduct gender invariance testing on a fear of victimization scale and the only known gender invariance test conducted on this specific scale and among a large sample of people in jail. We found that the fear of victimization scale from this survey, once

fear of sexually-motivated crimes was removed, is appropriate for continued use in determining differences between males and females.

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Author Note

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Endnote

- ¹ As one reviewer noted, this study is vulnerable to criticism regarding the inclusion of some of these crimes (i.e., carjacking, witness intimidation, home invasion, and breaking in) into the fear of gang-related victimization index (FearGang). To be sure, the original dataset did not ask respondents who they believed the perpetrators would likely be and labeling crimes as gang-related is inherently subjective. However, there is some support for these crime types to be included in the FearGang index. Specifically, carjacking (Brantingham et al., 2021; Los Angeles Police Department [LAPD], 2019, 2023), witness intimidation (Block & Block, 1993; Finn & Healey, 1996; LAPD, 2023; Mphaphul, 2022), home invasion and breaking in (Block & Block, 1993; Lane & Meeker 2003(a), 2004; Streets et al., 1996) were included in existing gang-related crime studies and police manuals. Following the suggestions made by Brantingham et al. (2021), this study utilized the term “gang-related” as a general designation as “any crime may constitute a gang-related crime” given certain criteria (LAPD, 2019).