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IS THE 'SHADOW OF SEXUAL ASSAULT' RESPONSIBLE FOR WOMEN'S HIGHER FEAR OF BURGLARY?

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This article examines the 'shadow of sexual assault hypothesis' which posits that women's higher fear of crime, compared to males, can be attributed to their elevated fear of sexual victimization. We argue that the previous, overwhelmingly supportive, research on this issue is incomplete in three ways: (1) the thesis has not yet been extensively tested outside of North America, (2) competing, possibly overlaying, shadow effects of physical violence have widely been ignored and (3) perceptually contemporaneous offences have always been measured in an indirect manner. Drawing on the example of fear of burglary, this work tackles the afore-mentioned deficiencies. Results from a crime survey conducted in the United Kingdom indicate that, when relying on a rather traditional test strategy, the 'shadow of sexual assault hypothesis' is supported. However, the findings are highly contingent on the employed methodology. When utilizing direct measures of perceptually contemporaneous offences, only physical, not sexual, assault turns out to cast a shadow over fear of burglary. The impact of fear of rape would appear to be reduced considerably once fear of broader physical harm is taken into account. We conclude that much of the existing evidence for the shadow thesis can be challenged on the grounds of failing to control for the effects of non-sexual physical assault and drawing on an inadequate operationalization of perceptually contemporaneous offences.

Keywords: shadow of sexual assault, perceptually contemporaneous offences, fear of crime

Introduction

A key thesis of feminist criminology submits that the patriarchal order of contemporary Western societies is founded on women's fear of becoming a victim of sexual violence (Brownmiller 1975; Stanko 1985; Gordon and Riger 1989). Men's superiority in terms of physical strength and their ability to rape generate a widespread fear of sexual assault among women. In response to this fear, women organize their lives and their behaviour in a way to minimize the risk of sexual victimization, thereby contributing to the reproduction of gender roles that perpetuate their subordination to men.

The thesis that rape serves as a way of maintaining the social control of women implies that considerable proportions of the female population worry about sexual assault and rape. Indeed, numerous survey studies demonstrate that plenty of women, much more than men, are afraid of sexual victimization (Warr 1984; 1985; Ferraro 1995; 1996; May 2001; Fisher and Sloan 2003; Lane and Meeker 2003; Wilcox et al. 2006; Dobbs et al. 2009; Hilinski 2009; Lane et al. 2009; Cook and Fox 2012; Lane and Fox 2013). Research has furthermore established that women are generally more fearful of crime than men, although their actual risk of victimization in many domains is lower than that of men (Hindelang et al. 1978; Ferraro 1995; 1996; Smith and Torstensson 1997;

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May 2001; Smith et al. 2001; Lane et al. 2009). The observation that population groups who are the least likely to become a victim of crime (females and the elderly) report the highest fear of criminal victimization has become known widely as the victimization-fear paradox in international fear of crime research (Hale 1996; Boers 2003).[1]

Common approaches trace women's higher levels of reported fear of crime to their greater physical and social vulnerability relative to men (Skogan and Maxfield 1981; Killias and Clerici 2000) or their greater general anxiety (Vitelli and Endler 1993; Chadee et al. 2009), among others. Some scholars have suggested that women more than men are victims of fear-inducing domestic violence or other forms of abuse committed in intimate relationships, and that intra-familial and intimate partner crimes are the offences that are least likely to be revealed in victim surveys (Stanko 1985; Wetzels 1993). Impression management and social desirability may also play a role: Traditional conceptualizations of masculinity are not compatible with admitting feelings of anxiety in front of other people, so some men can be expected to downplay their fear of victimization in surveys and interviews (Goodey 1997; Sutton and Farrall 2005).

One of the most popular approaches to explaining sex differences in fear of victimization directly relates to the fear of rape. Ferraro's (1995; 1996) and Warr's (1985) 'shadow of sexual assault hypothesis' contends that women's higher fear of crime is due to a fear of rape which casts its shadow over a range of other crimes. 'For women, any victimization may involve the risk of sexual assault, and women may then associate all types of victimization with sexual assault' (Truman 2010: 869). Hence, many offences may appear more serious in their consequences for women, which results in their being more afraid of crime in general.

A shadow or 'radiation effect' of sexual assault may be seen as a special case of what Warr (1984; 1985) termed 'perceptually contemporaneous offences' (PCOs)—crimes that are assumed to be contemporaneous with or precursors to other crimes. When different crimes are assumed to co-occur (e.g. that burglary may be accompanied by rape), then the corresponding consequence expectations mingle, thereby intensifying the emotional response through an elevated belief about the severity of consequences (Jackson 2009). It is exactly this attention to the possible consequences of rape and other crimes that more recently has led scholars to ask whether it is the sexual infringement inherent in rape specifically or the risk of physical harm in general that drives fear of criminal victimization (Lane and Meeker 2003; Cook and Fox 2012). Evidence for the latter position would suggest expanding the 'shadow of sexual assault hypothesis' to a 'shadow of physical assault hypothesis' that forsakes the focus on the specific sexual component of rape and shifts attention to the bodily harm associated with violent or personal crime.

Our Contribution

At the centre of the present article is the 'shadow of sexual assault hypothesis'. Research on it is generally considered supportive (Britto 2010; Truman 2010), although it has barely been tested outside of North America. What is more: The prevailing measurement of PCOs may be judged as unsatisfactory, in that, all previous efforts to measure PCOs have relied on what might be described an 'indirect' approach to the measurement of this concept. In other words, previous studies have asked respondents about

[1] The relationship between age and fear of crime becomes more complex (sometimes negative, sometimes curvilinear), when attention is turned to worry about specific offences (Hale 1996).

their fears of various offences (some personal in nature, others non-personal). To determine if fear of rape (or other PCOs) is present in fear of other offences, they then regressed these offence-specific fears on fear of sexual assault (or other PCOs). Findings according to which fear of rape significantly predicts fear of other crimes, has a stronger impact on personal crimes than on non-personal crimes, explains away the gender gap in fear of non-sexual crimes or exerts a greater influence among women compared to men are taken as evidence for the existence of shadow effects. Although this approach has produced valuable insights in the functioning of PCOs, it nevertheless leaves us to *infer* the presence of crimes that are coupled in people's mind with other crimes from effect parameters. What has been missing so far in the quantitative literature on the 'shadow of sexual assault hypothesis' is a more *direct* way of capturing the existence of PCOs (Lane and Meeker 2003: 366). We propose and discuss in greater detail an alternative strategy to the measurement of PCOs below.

In this article, the 'shadow effect approach' will be utilized to delve into sex differences in the fear of burglary. Although burglary basically affects all residents of the home concerned, women in many studies are found to be more fearful of it than men (Warr 1984; Ferraro 1996; Lane and Meeker 2003; Dobbs et al. 2009; Cook and Fox 2012; Özascilar 2013). In the following, we will address whether the common observation that females are more afraid of burglaries can be explained by the fact that they associate with it more closely the risk of being raped. We will also explore how women's fear of burglary relates to fear of physical assault in general and whether it is bodily harm or sexual violence specifically that is responsible for women's higher fear. Our research interest, though, is not restricted to the genesis of fear of burglaries: Burglary here serves as a test case to examine whether the well-documented shadow effect of rape is due to the physical violence that may be involved in it or whether it is the sexual aspect of rape that brings about its fear-provoking impact.

For several reasons, burglary qualifies as an ideal crime to study the impact of PCOs like rape and physical assault. Not the least due to its frequency, most people have a clear conception of burglary (Farrall and Ditton 1999). In legal and phenomenological terms, it is clearly distinguishable from other types of crime. These properties of burglary are probably the reason why both Warr (1984; 1985) and Ferraro (1996) use it as an example to illustrate their theoretical considerations on the radiation effects of some types of crime.

Our work extends prior research on the 'shadow hypothesis' in several respects. By drawing on data from a crime survey in one region of the United Kingdom, it represents the second test of the thesis conducted outside of Northern America.[2] It further contributes to our knowledge by examining not only the effects of sexual violence on men and women's fear of crime, but by incorporating the impact of non-sexually motivated physical violence, too. Furthermore, a methodological question is addressed: Do direct and indirect measures of PCOs produce identical results or is the salience of physical versus sexual assault as a predictor of fear of other crimes dependent on the employed measurement strategy?

The Shadow Thesis – Argument and Evidence

In the past 50 years, criminological research has established that people's actual risk of victimization is often much lower than their fear of crime (Hale 1996; Warr 2000;

[2] Apart from a recent study of university students in Sweden (Özascilar 2013), no European research on this issue is available.

Boers 2003). Such a disjuncture between objective and subjective security was observed particularly for women and the elderly. It is therefore not surprising that, in attempts to understand why certain population groups are more fearful than others, women and the elderly have received most attention (Hilinski et al. 2011).

Studies investigating the social distribution of criminal victimization usually conclude that males are more often victimized than females, although there is some indication that this difference varies across types of victimization (Hindelang 1976; Lauritson and Heimer 2008). There are only three categories of crime for which women have higher victimization rates than men: sexual offences, stalking and intimate partner violence (Fisher et al. 2000; Tjaden and Thoennes 2000; Catalano 2005; Fox et al. 2009).

Research has furthermore demonstrated that sex is one of the best predictors of fear of crime (Hale 1996; Warr 2000; Boers 2003). But, contrary to the distribution of victimizations, women have consistently been found to have higher levels of fear than men. Differentiated by type of offence, the greatest sex difference is usually observed in fear of rape and sexual assault (Ferraro 1996; May 2001; Fisher and Sloan 2003; Lane and Meeker 2003; Dobbs et al. 2009; Cook and Fox 2012; Lane and Fox 2013; Özascilar 2013), which is exactly the category of crime women actually have to face more than men.

The complex results outlined above have stimulated much theorizing. One key explanation of the sex divide in fear of victimization is the so-called 'shadow of sexual assault hypothesis' which posits that women are more afraid of crime than men because many offences have the potential to escalate into rape. Warr (1984; 1985) was the first to explore people's perceptions of the interrelationships between different types of victimization. He developed the concept of PCOs which was based on the insight that in everyday thinking various crimes are linked with each other because of the subjective belief that they are committed together or that one crime leads to the other (e.g. burglary of one's home while present could result in murder or rape). Warr (1984: 682) pointed out that females 'are uniquely susceptible to a profoundly terrifying offense – rape' and related this insight to women's higher fear of criminal victimization. He demonstrated that among young women, rape is the most feared offence, due not to a particularly high level of perceived risk, but to the perceived seriousness of the offence which equals that of murder. Which precise consequences females associate with rape (e.g. stigmatization, psychic trauma, pregnancy, sexually transmitted diseases, harm to a very delicate part of the body, physical violence, homicide), and to what extent the various consequences contribute to fear of rape is, however, not explored in Warr's seminal work. What he does, though, is recognize that fear of rape underlies fear of many other offences among women. In his words (Warr 1984: 700), 'rape occupies a central place in the fears of many women'.[3]

Ten years later, Ferraro (1995; 1996) took up the notion of PCOs and expanded it to what he labelled the 'shadow of sexual assault hypothesis'. Basically he argued that women are more afraid of victimizations because many crimes against women involve the possibility of sexual violence. Sexual assault is thought to qualify as a PCO especially for women—men are considered to be less susceptible to the threat of sexual crime.[4] From this perspective, rape appears as an ever-present concern for women that taints perceptions of many other crimes or, in other words, shadows these other crimes

[3] It is also Warr (1985: 247) who can be credited for introducing the metaphor of rape 'casting a shadow' over other offences in the scientific discussion.

[4] Empirical research, however, has demonstrated that fear of sexual assault matters for men, too—although to a lesser extent than for women (May 2001; Lane and Meeker 2003; Lane et al. 2009; Cook and Fox 2012; Lane and Fox 2013).

(e.g. when women think of burglary they also think of the risk of being raped by the intruder). As a consequence of this preoccupation with sexual violence, women's fear of non-sexual crimes increases.

Several North American studies—many of them drawing on convenience samples of college or university students—have found support for this thesis. These works usually show that a greater fear of rape is associated with a greater fear of other crimes and that the effect of sex on fear of non-sexual crimes becomes insignificant or even reverses when fear of rape is controlled for (Warr 1984; 1985; Ferraro 1995; 1996; May 2001; Fisher and Sloan 2003; Lane and Meeker 2003; Wilcox et al. 2006; Dobbs et al. 2009; Hilinski 2009; Lane et al. 2009; Cook and Fox 2012; Lane and Fox 2013). Fear of sexual assault seems to influence, particularly, fear of violent crime and fear of personal crime in general, the latter referring to illegal acts involving direct physical contact between perpetrator and victim. The relationship to property crimes has turned out to be weaker (Ferraro 1996; Fisher and Sloan 2003; Lane and Meeker 2003; Dobbs et al. 2009; Lane and Fox 2013; Özascilar 2013). The hypothesized effects have been observed for females and males (May 2001; Lane and Meeker 2003; Lane et al. 2009; Cook and Fox 2012; Lane and Fox 2013) and seem to be independent of the nature of the victim-offender relationship (Wilcox et al. 2006; Hilinski 2009). A qualitative content analysis of college women's own accounts of their fear of crime provides additional evidence for the 'shadow of sexual assault hypothesis' (Hilinski et al. 2011).

However, rape might not be the only PCO that increases fear of crime. Despite the rich evidence that sexual assault overshadows fear of other crimes, especially personal crimes, there is a lack of inquiry scrutinizing whether the shadow effect of rape may mask a broader shadow effect of physical harm. To our knowledge, only two studies have tried to disentangle the effects of physical harm and sexual intrusion empirically (Lane and Meeker 2003; Cook and Fox 2012).[5] Both studies found that fear of physical assault was a more important predictor of fear of other crimes than was fear of rape—for both males and females. Since one work focused solely on gang-related crimes (Lane and Meeker 2003) and the other relied on a sample of criminology students (Cook and Fox 2012), there is a need to advance knowledge on the exact nature of shadow effects by drawing on samples from the general population and crimes that are not tied to gangs.

Research on the specific interdependencies between fear of burglaries and fear of sexual assault is scarce. Ferraro (1996) as well as Dobbs and et al. (2009) demonstrated that fear of rape increases fear of burglary and that the sex difference in the latter is due to women's greater fear of sexual victimization. Lane and Meeker (2003) and Cook and Fox (2012), though, provided evidence that physical assault and not rape is the PCO that is mainly responsible for women's higher fear of burglary. A multidimensional scaling of female university students' fear of crime and dangerous situations leads Hughes et al. (2003: 43) to conclude that burglary while nobody is at home sparks the question 'What if I had been home?', which then establishes an association with the perceived risk of rape. The fact that burglary may occur while the occupants are at home is also the reason why the above-mentioned studies treat burglary as a personal crime.

[5] Ferraro (1996: 680) only briefly notes that rape, not murder, is the critical perceptually contemporaneous offence but does not present detailed results supporting his conclusion.

Method

Data

The utilized data stem from a survey of people living at private addresses in the (then) Strathclyde area.[6] The Strathclyde region included a substantial part of the west coast of Scotland, including some of the Western Isles, other rural areas and areas with several small- to medium-sized towns. Nearly half of the Scottish population lived within the region, which contained Glasgow, the United Kingdom's fourth largest city (by population size). The region therefore incorporated a good range of both densely urbanized and more sparsely populated residential spaces. The Postal Address File was used as the sampling frame.[7] From that, a simple random sample of 2,300 addresses was drawn. Of the 2,300 addresses initially selected, 149 were treated as out of scope as these were vacant. At 289 of the remaining 2,151 addresses, no one was found to be in after four calls. There were 134 refusals to be interviewed. At further 99 addresses, the interviewer was unable to gain access.[8] In the end, the 2,151 addresses produced 1,629 completed personal interviews, which corresponds to a response rate of 76 per cent. The survey was carried out between January and March 1996. In each household, the resident aged 16 years or older who was born earliest in the year was interviewed.

Measurement

Following Ferraro and LaGrange's (1987) recommendations to distinguish between the cognitive and the affective component of the fear of crime and to operationalize, the latter in terms of the fear of being a victim of specific named offences, fear of burglary, our key explanandum, was measured with the following question: 'In your everyday life, are you afraid of someone breaking into your home?'. Four response categories were available to grade the answers: 'not at all' (0), 'hardly ever' (1), 'some of the time' (2) and 'all the time' (3).

A review of the previous research on the shadow thesis reveals some basic methodological problems. Former attempts to capture the workings of PCOs have solely relied on indirect measures of both their existence and their influence. Usually respondents were asked about their fears of various offences (some personal in nature, others non-personal). The analytic strategy was then to produce a series of multiple regression models of fear of crime with the assumption that if fear of sexual assault was commonly believed to be contemporaneous to other victimizations, then fear of rape should significantly impact on fear of other crimes, its effect ought to be stronger with personal crimes than with non-personal crimes, and controlling for it should mitigate or neutralize sex differences in fear of non-sexual crimes. Supportive findings were taken as indirect evidence for the cognitive presence of sexual assault as a PCO.

Our approach to measuring PCOs is different. Based on insights gained from a series of 64 qualitative interviews with men and women of varying ages living in different parts of Glasgow, we designed new survey measures to assess the existence of PCOs

[6] Strathclyde was, as an administrative area, abolished in April 1996 as part of a local government reform.

[7] The Postal Address File (PAF) lists addresses in the United Kingdom (rather than people) and was a commonly used sampling frame at that time for drawing a sample of households (Dale et al. 1988: 22).

[8] At the time of the fieldwork, large parts of Glasgow were being redeveloped, which probably accounts for the percentages of people not in after four calls and addresses to which the interviewers were unable to gain access.

directly. These interviews revealed that the sorts of offences which were imagined to be contemporaneous to burglary were *not* limited to sexual offences, but extended to include losing property of a sentimental value, assault which had no sexual motive but was 'required' in order to accomplish the burglary, and criminal damage resulting from attempts to get in or out of the property. Inspired by these observations, we constructed a question battery aimed at identifying the offences which people routinely link to burglary. We designed five measures to determine which other crimes respondents' have in mind when contemplating about someone breaking into their home. Respondents were asked to report the extent to which they agree or disagree with five explanations of why they feel fearful of burglary. The full wording of the items was: 'I want you to tell me whether or not you agree with the following statements. I am afraid of someone breaking into my home because …

1 … they may try to attack me'
2 … they may try to attack other people'
3 … I may have personal property of a sentimental value stolen'
4 … I may have cash or credit cards stolen'
5 … they may sexually assault me'.

Each of these items was offered a four-point response scale ranging from 'strongly disagree' (0) to 'strongly agree' (3). We believe that these are much more direct measures of PCOs since tapping into the reasons the respondents themselves give for their fear of burglary provides immediate access to the crimes people subjectively associate with burglary.

An alternative way to determine which crimes are viewed as likely to occur together with burglary draws on crime-specific risk perceptions. To assess the perceived risk of offences that may accompany an incident of burglary, another Likert-type question was employed: 'Suppose that someone broke into your home while you were at home. How likely do you think it is that you would suffer any of the following? [being beaten up/being raped/being murdered]'. The respondents could choose between four answering categories ranging from 'certain not to happen' (0) to 'certain to happen' (3).

Because of a possible impact of previous victimization on current levels of fear (Wilcox et al. 2006; Hummelsheim et al. 2011), personal victimization background was incorporated as a control variable. Our measure of victimization experience concentrates on burglary. Respondents who indicated having been a victim of burglary in the previous year were coded 1 and non-victims were coded 0. In all, 4 per cent of the sample report burglary victimization in the reference period.

Fear of burglary, in particular burglary while at home, may be contingent on the ability to defend oneself against possible attackers (Killias 1990; Boers 2003). In this context, May (2001: 167) introduced the notion of a 'shadow of powerlessness' that may work in a similar manner as the 'shadow of sexual assault': Low confidence in one's personal abilities to deal with dangerous, crime-related situations may drive fear of different types of victimization. To tap into the respondents' confidence in their coping skills, an item asking 'How strong are you compared to the average man?' was employed. Since most offenders are male, all participants of the survey were asked to assess their physical defence power in relation to the typical man. The respondents could select between five answering categories ranging from 'much weaker' (0) to 'much stronger' (4).

Three socio-demographic control variables were included in the analysis: economic situation, education and age. Information on the respondents' economic situation was obtained from an indirect measure focusing on the difficulty of raising extra money. Respondents were asked 'Imagine that you suddenly had to find £200 to meet an unexpected expense and that you could not borrow this from your bank. How easy would it be to find the money?'. Five response options, ranging from 'very easy' (0) to 'impossible' (4), were provided to grade the answers. The employed coding scheme implies that high values indicate increased economic strain.[9] Respondents' level of education was depicted by a dichotomous variable indicating whether the respondent has solely compulsory education (0) or achieved higher educational qualifications (1). Age was measured in life years. Since the relationship between age and fear of crime has been shown to be curvilinear in some previous research (Ferraro and LaGrange 1992; Hummelsheim et al. 2011), a quadratic term for age was included in our regression models. Sex was coded 0 for females and 1 for males.

Table 1 gives the descriptive statistics of all the variables used in this study.

Results

Given our research topic, it makes sense to begin data analysis with a look at the distribution of fear of burglary between sexes. The data indicate that women are significantly more fearful of burglary than men ($r = 0.12$; $p \leq 0.001$): 47 per cent of females, but only 35 per cent of males report being afraid of someone breaking into their home at least some of the time.

An investigation of the explanations male and female respondents gave for their fear of burglary marks an ideal point of departure when striving for an understanding of women's higher fear of burglary. Table 2 reports respondents' answers when questioned about the detailed reasons for their fear of burglary. It is apparent that both men and women most frequently trace their fear of burglaries to the possible loss of personal property, cash or credit cards. So the theft of sentimentally or monetarily valuable goods turns out to be the offence people in their minds most often couple with burglary. The risk of non-sexual physical violence is in second place. Both sexes associate physical assault with burglary, but to lesser extent than theft. Sexual assault, or rape, is actually the *least* widespread PCO, regardless of sex. The proportion of respondents reporting that fear of sexual victimization underlies their fear of burglary is lower than the corresponding rates for the other crimes that may go together with burglary.

Although the priority order is roughly the same for both sexes, differences in the salience of the various PCOs are much greater among men. Whereas sexual assault ranks far behind all other types of crimes among men, this is not the case for women. Among women, the possibility of being raped, although also the least cited explanation of why burglary is fear-provoking, is still frequently mentioned.

Viewed from a different angle, Table 2 reveals that PCOs are 'gendered'. Females agree significantly more strongly with all the cause-statements than do males. But while the discrepancies in the frequency of reference to theft and violence against co-residents are only slight, physical assault and especially rape clearly make a difference for men

[9] Our indirect measure of people's economic predicament is validated by its close correlation with household income ($r = -0.48$; $p = 0.000$). Since the latter is burdened with a relatively high rate of missing values (20 per cent), we decided to rely on the former.

TABLE 1 *Descriptive statistics for variables included in the analyses*

Variable	*N*	*μ*	SD
Female	1,629	0.58	0.49
Age	1,613	47.77	16.98
Higher education	1,627	0.32	0.47
Economic hardship	1,629	1.67	1.21
Burglary victimization	1,629	0.04	0.20
Physical strength	1,629	1.18	1.02
Total fear of burglary	1,597	1.25	0.96
Reason 'attack me'	1,459	1.79	0.75
Reason 'attack others'	1,447	1.82	0.77
Reason 'property stolen'	1,524	2.05	0.68
Reason 'cash or credit cards stolen'	1,539	1.98	0.70
Reason 'sexually assault me'	1,350	1.30	1.00
Risk of rape	1,318	1.10	0.95
Risk of physical assault	1,385	1.76	0.71
Risk of murder	1,227	1.51	0.77

μ, arithmetic mean; N, number of respondents; SD, standard deviation.

TABLE 2 *Sex differences in fear and perceived risk of offences associated with burglary*

	Males	Females	Δ*μ*	*t*	p	*r*
	μ/%	*μ*/%				
Fear of burglary	1.11/35	1.35/47	0.24	4.96	0.000	0.12
Afraid of burglars because						
They may try to attack me	1.63/64	1.91/80	0.28	7.12	0.000	0.19
They may try to attack other people	1.74/70	1.88/78	0.14	3.35	0.001	0.09
I may have personal property of a sentimental value stolen	1.99/85	2.09/86	0.10	2.71	0.007	0.07
I may have cash or credit cards stolen	1.92/81	2.02/83	0.10	2.61	0.009	0.07
They may sexually assault me	0.79/22	1.71/69	0.92	19.01	0.000	0.46
Perceived risk of falling victim to several infringements when at home during burglary						
Being beaten up	1.79/78	1.73/74	−0.06	1.39	0.174	−0.04
Being murdered	1.44/55	1.57/64	0.13	2.81	0.005	0.08
Being raped	0.63/22	1.48/61	0.85	18.06	0.000	0.45

μ, arithmetic mean; Δμ, mean difference; p, error probability; r, product-moment correlation; t, *T* value; (%): proportion of respondents answering with 'some of the time/all of the time', 'agree/strongly agree' or 'might happen/certain to happen'; (0): not at all/strongly disagree/certain not to happen; (3) all the time/strongly agree/certain to happen.

and women. Women justify their fear of burglary substantially more often with possible bodily harm than do men. But where the sexes differ the most is in the extent to which they link burglaries and sexual violence. More than three times as many women (69 per cent) as men (22 per cent) agree with the statement 'I am afraid of someone breaking into my house because they may sexually assault me'.

A similar picture emerges when the focus is shifted to the perceived likelihood of other victimizations associated with burglary: Although being raped in the course of a burglary is perceived as less likely than being assaulted in a non-sexual manner, it is primarily the risk of sexual victimization which discriminates between the sexes. When imagining a burglary, 60 per cent of the women thought that they would be raped.

For men, this figure was 22 per cent. Again, the discrepancy in the crime-specific risk appraisals is much greater among men, where rape ranges far behind all other types of possible parallel victimizations,[10] than the divide is among women.

Having established that women account for their fear of burglary more often with possible physical and sexual assaults than men—the gap thereby being wider for sexual than for non-sexual violence—the logical next step is to examine how the articulated reasons for this fear relate to the respondents' actual level of fear of burglaries. Table 3 shows the corresponding correlation coefficients, differentiated by sex.[11] The results indicate that the extent to which people are fearful of burglary is predominately shaped by the degree to which they associate bodily harm with it. The more both men and women name physical assault as the reason for their fear of burglary, the higher their total level of burglary fear. The correlations with other PCOs are weaker. In the male population, sexual assault has clearly the lowest correlation coefficient with fear of burglary. Among women, the situation is slightly different: Here, fear of sexual assault turns out to be more salient than fear of theft of cash and credit cards, and approximately as relevant as are worries related to theft of sentimentally valuable goods and assault of co-residents.

Directing attention to the estimated likelihood of other victimizations that may accompany an incident of burglary yields a somewhat different picture. Here, the correlation coefficients are much more balanced. Although risk assessments are available only for violent crimes, it is apparent that the perceived likelihood of physical assault does not exceed that of rape in its impact on fear of burglary. Perceived risk of bodily harm and murder are roughly as predictive as is the estimated risk of rape.

Table 3 *Correlations of perceptually contemporaneous offences with the actual level of fear of burglary (product-moment correlation coefficients)*

	Males	Females
Afraid of burglars because		
They may try to attack me	0.39***	0.30***
They may try to attack other people	0.26***	0.22***
I may have personal property of a sentimental value stolen	0.28***	0.20***
I may have cash or credit cards stolen	0.22***	0.12***
They may sexually assault me	0.14***	0.18***
Perceived risk of falling victim to several infringements when at home during burglary		
Being beaten up	0.17***	0.25***
Being murdered	0.18***	0.24***
Being raped	0.21***	0.21***

***p ≤ 0.001; **p ≤ 0.01; *p ≤ 0.05.

[10] Attempts to describe the subgroup of male respondents who associate burglary with sexual violence in more detail brought limited success. Although these men are significantly more fearful of crime in general, respond with more anger to the thought of someone breaking into their home and are also less self-confident regarding their coping skills, the relationships remain very weak. Logistic regression analyses relying on these predictor variables identified only 19 per cent of the males saying they are afraid of burglary because they might be sexually assaulted and only 8 per cent of the males expecting being raped when falling victim to burglary. Tables displaying the results of the conducted correlation and logit analyses can be obtained from the authors.

[11] Since some of the cause-statements are highly inter-correlated (up to 0.80), multi-collinearity problems forbid introducing the items simultaneously into multivariate regression models.

So far we have demonstrated that, when it comes to contemplating burglary, the sexes differ the most in the frequency of referencing to rape, but in absolute terms sexual assault is neither the most common PCO associated with burglary nor is it the key determining factor of people's fear of burglary—neither for men nor for women. So, the finding that sex differences in fear of personal crime can be accounted for by fear of rape, which has been repeatedly observed in previous studies (Warr 1984; Ferraro 1996; May 2001; Dobbs et al. 2009), may more be due to the extent of the sex difference in fear of sexual offences than it expresses a strict dependency of fear of non-sexual crimes on fear of sexual victimization. This, of course, does not rule out the possibility that the impact of sexual crime simply masks a broader effect of physical violence in general. In broad accordance with Lane and Meeker (2003) and Cook and Fox (2012), the data utilized here point to a pivotal role of a general fear of physical harm. Our previous findings reveal that non-sexual physical assault is believed to be more contemporaneous to burglary than sexually motivated assault (Table 2), and that the former also exerts a stronger influence on total fear of burglary than the latter (Table 3). This suggests that fear of physical harm in general, rather than fear of sexual infringements specifically, may be the driving force underlying people's fear of burglaries. To approach the question whether it is mainly physical assault in general or rape specifically that shadows over burglary, analyses of the interrelationships between concerns about rape and other PCOs mark a useful point of departure. Table 4 gives the corresponding correlation coefficients.

The correlation analyses make it very clear that among women, fear of rape is closely associated with fear of physical harm, whereas the linkage between the two is rather loose among men. This picture evolves both when drawing on the explanations the respondents give for their fear of burglary and when relying on the perceived risk of concomitant victimizations. An exception to the rule is made solely by the perceived risk of being murdered: The estimated likelihood of being murdered in the course of a burglary is connected to the perceived risk of being raped among men as well. Furthermore, it can be seen that, among females, fear of sexual assault is also capable of tainting concerns about theft. On balance, the findings are very much in line with the assumption that rape casts a shadow over other crimes especially among women, whereas men are less susceptible to radiation effects of sexual assault.

Table 4 *Correlations of fear of sexual assault with other burglary-related fears (product-moment correlation coefficients)*

	Males	Females
Afraid of burglars because		
They may try to attack me	0.16***	0.63***
They may try to attack other people	0.22***	0.54***
I may have personal property of a sentimental value stolen	0.06	0.42***
I may have cash or credit cards stolen	0.00	0.39***
Perceived risk of falling victim to several infringements when at home during burglary		
Being beaten up	0.22***	0.60***
Being murdered	0.47***	0.71***

***p ≤ 0.001; **p ≤ 0.01; *p ≤ 0.05.

The close linkage between fear of sexual assault and fear of broader physical harm among women corroborates a 'gendered' nature of PCOs. This linkage, furthermore, raises concerns that the frequently documented shadow effect of rape may actually be due to a fear-enhancing impact of physical assault. In order to disentangle the effects of fear of physical harm and fear of rape on fear of burglary and the sex difference in the latter, a series of stepwise linear regression analyses was performed. Table 5 presents the results of the various ordinary least squares (OLS) models.[12]

Models 1–4 serve as base line models of various sorts. Model 1 demonstrates the now well-established finding that sex is associated with level of fear. Model 2 incorporates various socio-demographic variables, which do not alter this finding. The latter also applies to Models 3 and 4 which add previous burglary experience and self-reported physical strength. Model 5 introduces perceived risk of rape and suggests that this, rather than sex, which now becomes insignificant, is the key explanatory variable. Model 6 adds risk of physical assault and risk of murder to the equation and reveals that only the former of these is significantly associated with fear of burglary (this with

TABLE 5 *Results of OLS regression models predicting fear of burglary*

	Model 1		Model 2		Model 3		Model 4	
	β	p	*β*	p	*β*	p	*β*	p
Sex	0.12	0.000	0.12	0.000	0.12	0.000	0.10	0.000
Age			−0.02	0.416	−0.02	0.459	−0.04	0.205
Age squared			−0.09	0.001	−0.09	0.001	−0.09	0.001
Education			0.00	0.957	−0.00	0.952	0.00	0.970
Economic hardship			−0.01	0.593	−0.02	0.552	−0.02	0.486
Burglary victimization					0.07	0.008	0.07	0.007
Physical strength							−0.06	0.046
Risk of rape								
Risk of physical assault								
Risk of murder								
Fear of sexual assault								
Fear of physical assault								
Overall model	R^2 = 0.02; p = 0.000		R^2 = 0.02; p = 0.000		R^2 = 0.03; p = 0.000		R^2 = 0.03; p = 0.000	
	Model 5		Model 6		Model 7		Model 8	
Sex	0.01	0.892	0.06	0.061	0.06	0.064	0.08	0.016
Age	0.01	0.753	0.01	0.831	−0.02	0.476	−0.02	0.527
Age squared	−0.08	0.005	−0.08	0.005	−0.07	0.011	−0.06	0.045
Education	0.01	0.787	0.02	0.476	0.00	0.895	−0.01	0.797
Economic hardship	−0.01	0.773	0.00	0.955	−0.01	0.711	−0.02	0.399
Burglary victimization	0.05	0.069	0.05	0.092	0.07	0.017	0.06	0.019
Physical strength	−0.01	0.772	0.02	0.482	−0.01	0.675	0.02	0.586
Risk of rape	0.23	0.000	0.14	0.000				
Risk of physical assault			0.12	0.001				
Risk of murder			0.06	0.166				
Fear of sexual assault					0.17	0.000	0.03	0.392
Fear of physical assault							0.31	0.000
Overall model	R^2 = 0.06; p = 0.000		R^2 = 0.09; p = 0.000		R^2 = 0.05; p = 0.000		R^2 = 0.13; p = 0.000	

β, standardized regression coefficient; p, error probability (all variance inflation factors < 2.1).

[12] At this juncture, it must be noted that ordinal regression analyses provide substantively identical results. The same applies when product-moment correlation coefficients are replaced by Kendall's tau-b.

discernibly weakening, but not fully suspending the impact of rape). In model 7, we introduce our direct measure of sexual assault as a PCO, having removed the risk measures. The respondents' own reference to sexual assault as the underlying cause of fear of burglary enters at a statistically significant level and exhibits the greatest regression coefficient. Sex once again becomes insignificant. In model 8, our new direct measure of physical assault as the reason for fear of burglary is added as another independent variable. Surprisingly, this not only 'trumps' fear of sexual assault; in fact, it strips fear of sexual assault of its significance.[13]

The results of the multiple regression analyses show that conclusions are contingent on the way PCOs are measured, particularly when the effects of physical and sexual violence are considered simultaneously. At first sight, the classical 'shadow thesis' receives support. When only a possible shadow effect of sexual assault is examined (Models 5 and 7), the regression models provide findings that correspond to the theoretical expectations—and this independent of the operationalization of sexual violence. Concerns related to sexual assault drive fear of burglary and are furthermore capable of explaining away sex differences in the latter. In brief, the shadow effects of sexual crime are responsible for the sex divide in fear of other crimes.

When a potential shadow effect of physical violence is added to the equations, the picture, however, changes. Now, it is apparent that at least parts of the fear-provoking effects of rape are absorbed by physical harm in general. Contingent on the operationalization of PCOs somewhat different conclusions are obtained. When drawing on the estimated likelihood of possible parallel victimizations (Model 6), rape and non-sexual violence prove to be equally predictive, with the latter soaking up parts of the explanatory power of the former. So, when relying on the perceived risk of victimizations that may accompany burglary, the implication is that both physical and sexual assault propel fear of burglary. A different picture evolves, though, when the analyses are based on the justifications the respondents quote for their fear of burglary (Model 8). Now, the impact of physical violence comes to the fore. As soon as the effects of sexual and non-sexual assault are considered simultaneously, only fear of broader physical harm holds explanatory power.[14] From a more general perspective, these results suggest that much of the evidence supporting the 'shadow of sexual assault hypothesis' is biased by the fact that it does *not* control for the influence of fear of broader bodily harm.

Apart from anxieties related to sexual and non-sexual violence, with age and sometimes the specific victimization background, only few other predictors attain significant explanatory power. Age exerts a curvilinear influence on fear of burglary: Respondents in the mean age groups are more afraid than their older and younger counterparts. The explanatory value of the victimization variable depends on the measurement of the included PCOs: Having been a victim of burglary significantly raises fear of burglary when controlling for the reasons the respondents give for their fear, but not when adjusting for their risk appraisals regarding possible parallel victimizations. This observation is consistent with a common finding in fear of crime research: Personal victimization increases the perceived likelihood of future victimization (especially for the same

[13] Lane and Meeker (2003) and Cook and Fox (2012) also show that fear of physical assault outdoes fear of rape as a predictor of fear of crime, but in their studies, fear of rape keeps a significant effect.

[14] That the sex difference in fear of burglary becomes significant again here, should not be overemphasized. With 0.08, the gender effect has to be assessed as very modest. Furthermore, the discrepancy between the standardized gender regression coefficients obtained in Models 7 and 8 amounts only to 0.02.

offence), which then elevates fear of crime. As soon as differences in risk assessment are taken into account, no direct fear-enhancing effect of prior victimization is left (Boers 2003; Hirtenlehner and Mesko 2011).

With regard to the discussion whose shadow is responsible for sex differences in fear of crime, the results of our regression models can be summarized as follows: There is definitely evidence to support the 'shadowing' impact of fear of physical harm. The answer to the question whether there is something unique about fear of sexual harm that contributes to our understanding of women's heightened fear of burglary once the analysis is adjusted for differences in fear of physical violence depends on the measurement of the included PCOs. Some models support the assumption that concerns about rape specifically have additional explanatory power, others do not. The latter imply that fear of sexual violence, in its impact on other crimes, is just a special case of a broader fear of physical violence. The fact that some of the multivariate models—those that make use of the most direct measures of PCOs (i.e. those that rely on fear and not on perceived risk of concomitant offences)—strip sexual assault of its influence challenges the existing evidence for the 'shadow of sexual assault hypothesis'. The observed effects of fear of rape on other fears may be spurious, solely reflecting the failure to include the perceived threat of harm to the body in general as an additional determining factor—not to mention all the problems tied to the indirect measurement of fear of sexual assault as a PCO.

Fitting separate models for men and women (Table 6) by and large supports our conclusions: It is primarily the fear of physical violence, in general, that drives fear of burglary. A remarkable exception can be found, though, when focusing on men's perceived risk of falling victim to concomitant offences: Here, the significance of rape exceeds that of physical assault. This may have to do with the correlational structure of the PCOs. While perceptions of the risk of being raped and the risk of being physically attacked are closely associated among women, they are only weakly correlated among

TABLE 6 *Results of OLS regression models predicting fear of burglary differentiated by sex*

	Males				Females			
	Model 6a		Model 8a		Model 6b		Model 8b	
	β	p	*β*	p	*β*	p	*β*	p
Age	0.06	0.214	−0.01	0.863	−0.02	0.690	−0.02	0.607
Age squared	−0.20	0.000	−0.14	0.001	−0.01	0.747	−0.01	0.894
Education	0.15	0.001	0.09	0.036	−0.05	0.204	−0.07	0.071
Economic hardship	0.02	0.637	−0.08	0.071	−0.03	0.548	0.00	0.982
Burglary victimization	−0.01	0.792	0.01	0.787	−0.08	0.047	0.12	0.002
Physical strength	0.03	0.538	−0.05	0.246	0.01	0.752	0.05	0.202
Risk of rape	0.23	0.000			0.06	0.298		
Risk of physical assault	0.08	0.102			0.16	0.006		
Risk of murder	0.03	0.574			0.08	0.200		
Fear of sexual assault			0.07	0.094			0.00	0.968
Fear of physical assault			0.34	0.000			0.28	0.000
Overall model	$R^2 = 0.12$; p = 0.000		$R^2 = 0.18$; p = 0.000		$R^2 = 0.08$; p = 0.000		$R^2 = 0.10$; p = 0.000	

β, standardized regression coefficient; p, error probability (all variance inflation factors < 2.7).

men (see Table 4). When men think about encountering a burglar, they will probably assume that he is (1) male and (2) heterosexual, which may result in them expecting violence, but not rape. For women, the heterosexuality assumption stimulates both concerns about rape and violence.[15] It may be the clearer distinction between the various PCOs among males that is responsible for this specific finding.[16]

Conclusions

This article has sought to determine whether female respondents' higher fear of burglary (compared to their male counterparts) is due to the former's fear of rape—as posited by the 'shadow of sexual assault hypothesis'—or whether a broader fear of physical harm is responsible for the addressed gender divide. Previous, generally supportive, research on the shadow thesis can be criticized in several ways: Apart from a lack of studies conducted outside North America, research is impaired by a widespread neglect of competing, possibly overlaying shadow effects of unspecific physical violence as well as rather indirect measurements of PCOs. It cannot be ruled out that what is commonly seen as evidence for a 'radiation effect' of rape merely reflects a series of methodological artefacts.

Results from a crime survey conducted in the United Kingdom that incorporates different operationalizations of PCOs (all more direct than the common measurements) are suited to challenge the previous consensus. Modelled conventionally, i.e. including only perceptions of rape alongside other covariates in multiple regression analyses, our findings replicate the well-known supportive picture: Fear of rape has a positive effect on fear of burglary and is capable of 'explaining away' the sex difference in the latter. Things become more complex, however, once fear of physical assault is added to the equations. Now much—or nearly all—of the variance previously explained by fear of rape is accounted for by fear of broader physical harm. How much of the explanatory power is transferred to physical assault depends on the operationalization of PCOs. The most direct—and from our view most convincing—measurement of PCOs suggests that fear of physical harm in general is the key influencing factor. Once the physical assault component is controlled for, the threat of sexual intrusion adds little to the understanding of the magnitude of fear of burglary. These findings largely mirror the results of Lane and Meeker (2003) and Cook and Fox (2012), without being restricted to the sphere of gang-related crimes (Lane and Meeker 2003) or based on data collected from undergraduate students only (Cook and Fox 2012). Here, we have relied on data from a probability sample of one of the largest administrative regions of the United Kingdom and made use of comparatively direct measurements of PCOs that are derived from an extensive qualitative preliminary study. On balance, we think that these methodological merits can profoundly enhance the confidence in the validity of the findings obtained. In this way, our article contributes not only to the substantive issues but also provides some possible methodological forward steps for future research in this area.

[15] An anonymous reviewer pointed out that in the aftermath of domestic violence breaking into a once shared home is not uncommon, which may also contribute to an amalgamation of fears about burglary, physical violence and rape among women.

[16] Technically, the low correlation between the items among males implies that physical assault cannot take away explanatory power from rape.

Our study, of course, also has some methodological limitations. Apart from the cross-sectional design, the measurement of the critical PCOs must be addressed here. There may be some semantic overlap between the items 'I am afraid of someone breaking into my home because they may try to attack me'. and 'I am afraid of someone breaking into my home because they may sexually assault me'. The former, at least for some respondents, may not only capture non-sexual physical assault as a PCO but also tap into fear of sexual violence. This could be the case especially for women. Table 4 shows that the two items are highly inter-correlated among female respondents, with 86 per cent of the women worried about attack also reporting fear of sexual assault. Men, on the other hand, seem to distinguish between 'attack' and 'sexual assault': A low correlation between the items signals discriminate validity.[17] The partial overlap, however, does not necessarily challenge our conclusions. Broader physical harm can encompass sexual harm. Besides, it can be argued that our modelling strategy helps to differentiate between the sexual and the non-sexual component of physical assault. We introduced 'fear of attack' only together with 'fear of sexual assault' into multiple regression models predicting fear of burglary. With this, we intended to make sure that the sexual component is partialled out of the 'fear of attack' item, and the explanatory contribution of the latter is reduced to its non-sexual component. But, admittedly, we have not really compared our new analytic strategy with that employed previously by other scholars. It is for future research to do that and to refine and extend our results by using different data sets.

All things considered, our findings clearly demonstrate that inferences (which conclusions are to be drawn on the tenability of the 'shadow of sexual assault hypothesis') are highly contingent on the employed methodology. The more direct the utilized measures of PCOs are (and the more we move from perceived risk to emotional fear), the more we are forced towards rejecting the hypothesis that women's greater levels of worry about burglary are due to a 'hidden' fear of rape, and instead, the more we would argue that they are driven by an unspecific fear of physical assault. But, of course, our inferences have to be seen as preliminary. A replication of our study in other countries and for other crimes (e.g. robbery) is indispensable to reach firm conclusions. Moreover, as mentioned above, our data are limited, in that, they are purely cross-sectional. In order to establish the causal ordering between the concepts more reliably, longitudinal studies are necessary.

More generally, our findings point towards the importance of the mental imagery of crime in the fear of crime, showing the salience of how people represent a particular criminal event, specifically how consequence expectations can mingle and how this intermingling varies with sex. Future work in this area might expand the focus beyond examining whether sex differences in fear of crime can be explained by the differential perception of the consequences of criminal victimization. It might explore more generally how people come to form a certain imagery of crime and how their representations of risk shape their emotional response. Such an endeavour may draw on previous works on risk sensitivity (Warr 1987; Jackson 2011). According to this literature, how people think about a certain criminal event includes not just the perceived probability of an event occurring and expectations concerning the consequences associated with it, but also personal beliefs about the controllability of the outcome. The risk sensitivity model

[17] Only 30 per cent of the men worried about attack also report that they are afraid of sexual assault.

suggests that these cognitions are linked interactively, not additively, with people's emotional response to perceived risk of victimization being stronger when they construe the event as highly consequential and hardly controllable.

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