研究論文

INVESTIGATING PRODUCTION MECHANISM OF FEAR OF CRIME IN URBAN CHINESE COMMUNITIES – ROLE OF SOCIAL DISORDER[*][†]

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ABSTRACT

A good deal of research conducted in the West has documented the complexities surrounding fear of crime (for a review of earlier literature, see Hale 1996). Studies have found that fear of crime is not proportional to the level of crime; fear of crime is more widespread than crime itself; individuals who are more fearful (Walklate, 1994; Stanko and Hobdell, 1993; Goodey 1994; Fattah and Sacco 1989:212-226) are those who have lower risk of victimization. These complexities are important to

investigate. Fundamentally, what is the process or mechanism through which fear of crime is produced? This paper starts with assess the applicability of the three major theoretical models developed in the West in a previously neglected context and then focuses on the investigation of the mechanisms through which fear of crime is produced. The study conducts multi-level analyses of data from a survey of 2500 household in Tianjin, China to test the hypothesis on the role of disorder. The results find supportive evidence that disorder mediates or partially mediates the effects of important variables.

Key words: fear of crime, social disorder, China, victimization

I. INTRODUCTION

Fear of crime has serious consequences for quality of life and community deterioration (e.g. Skogan, 1990). Controlling and reducing fear of crime is thus an important public policy challenge. Indeed, many crime prevention programs have a secondary aim of reducing fear of crime (Bennett, 1990: 124). However, sound policy decisions require a good understanding of the production of fear, which is a very complicated process.

A good deal of research conducted in the West has documented the complexities surrounding fear of crime (for a review of earlier literature, see Hale, 1996). Studies have found that fear of crime is not proportional to the level of crime; fear of crime is more widespread than crime itself; individuals who are more fearful, for example - women and the elderly, appear to have the least risk of being victimized (Walklate, 1994; Stanko and Hobdell, 1993; Goodey, 1994; Fattah and Sacco, 1989: 212-226). The complexity of the fear of crime process is also reflected in many mixed findings in the research literature. For example, it would be reasonable to expect respondents' victimization experiences to cause higher fear, but the results of the research have been inconsistent. These complexities are important to investigate: One, why is the level fear of crime not directly proportionate to the level of crime? Two, why do individuals who are more fearful tend to be those who have

lower risk of being victimized? Fundamentally, what is the process or mechanism through which fear of crime is produced?

Three overarching theoretical explanations have appeared in the literature to account for fear of crime. One explanation has focused on the correlations between socio-demographic characteristics and fear of crime (Gates and Rohe, 1987; Hindelang et al., 1978; Liska et al., 1988; Skogan and Maxfield, 1981). A key, orienting theme of this research has been the salience of "vulnerability." Social characteristics and personal experiences indicative of social and physical vulnerability are expected to increase levels of fear of crime (Braungart et al., 1980; Clemente and Kleiman, 1977; Kennedy and Silverman, 1985; Taylor and Hale, 1986; Will and McGrath, 1995). The second explanation emphasizes the importance of a person's victimization experiences, proposing that victims of crime are likely to express a greater level of fear (Skogan and Maxfield, 1981). The third and the most influential theoretical model is the disorder thesis, which stresses the conditions of social disorder and processes of community decline in generating fear (Wilson and Kelling, 1982; Skogan, 1990). Studies of disorder and crime constitute the largest proportion of the literature on fear of crime. These theories have been important in explain fear of crime. However, they do not directly answer our key questions; they do not directly address the production mechanism of the fear of crime.

In contrast with the large body of literature in the West, research on fear of crime in China is still quite rudimentary. Some descriptive evidence is nevertheless available in Chinese sources. Since 2001 the China Census Bureau has conducted annual surveys of people's concern with their safety and security using a national sample of 100,000. These governmentally supported studies indicate that feelings of security are fairly widespread. For example, about 81% of the respondents in the 2001 survey and 84% in the 2002 survey felt safe and fairly safe (Wang and Li, 2005). On the other hand,

data from polling firms suggest that concerns about safety might be more prominent among the public than reflected in the official surveys. The Ling Dian company conducted a survey of Chinese safety and security concern using a national sample of 3,859 in 2004 (Yun and Fan, 2001; Zen and Yun, 2005). The poll used a Likert-type scale with five response categories ranging from very safe to very unsafe and computed the mean score of the responses. The results indicate that the mean is 3.51, above the midpoint in the direction of "very unsafe." Roughly comparable scores were observed in surveys conducted in 2003 (mean = 3.66) and 2002 (mean = 3.62) (Zen and Yun, 2005). Unfortunately, Chinese scholars have yet to conduct sophisticated multivariate analyses of fear of crime. This neglect is due in part to Chinese traditions in the study of criminological phenomena, which emphasize philosophical and legal discourse rather than quantitative empirical inquiry (Zhou and Cong, 2001).

This paper starts with assess the applicability of the three major theoretical models developed in the West in a previously neglected context and then focuses on the investigation of the mechanisms through which fear of crime is produced to explore the answers for our fundamental question on how fear of crimes are produced.

That is, we first assess the effects of selected socio-demographic characteristics, victimization experiences, and perceived disorder on fear of crime with data from a sample of respondents in Tianjin, China. China has the largest population in the world and has a political and cultural context that is distinct from that of the Western countries where the major explanatory models of fear of crime have been generated. To what extent are these theoretical models applicable to contemporary urban China? Do special social and cultural features generate distinctive patterns? The answers to these questions are important for establishing the generalizability of theoretical models on fear of crime.

The paper then focuses on the investigation of the mechanisms through which widely observed correlates of fear of crime exert their influence. The past literature has largely addressed the direct influence of explanatory variables on fear of crime; little research has taken the further step of exploring the mechanism through which theoretically and empirically established determinants influence fear of crime. Specifically, we thus assess scope conditions and elaborate theoretical models of fear of crime developed in the West using data from a criminal victimization survey recently conducted in the Chinese city of Tianjin. We investigate the extent to which perceptions of disorder mediate the impact of other variables.

II. PREVIOUS RESEARCH

Early studies of fear of crime focused mainly on correlations with individual, socio-demographic characteristics. The accumulated body of research indicates that women and the elderly tend to report higher levels of fear compared with men and the younger population. This pattern has been interpreted as being supportive of a physical vulnerability hypothesis: greater physical vulnerability is associated with greater fear of crime (Braungart et al., 1980; Clemente and Kleiman, 1997; Kennedy and Silverman, 1985; Vanderveen, 2002; Will and McGrath, 1995; Wittebrood, 2002).

Along with examining the hypothesis of physical vulnerability, researchers have also relied on the notion of social vulnerability to inform the search for socio-demographic correlates of fear of crime. Socio-economic disadvantages associated with income, education, race, and ethnicity are often considered indicative of such vulnerability. Researchers typically hypothesize that, similar to physical vulnerability, social vulnerability is related to greater fear of crime. Some studies have examined the effects of income and education (Taylor and Hale, 1986; Will and McGrath, 1995), while others have examined race and ethnicity (Braungart et al., 1980; Clemente and

Klieman, 1977; Covington and Taylor, 1991; Liska et al., 1988; Skogan and Maxfield, 1981). The findings on social vulnerability have not been entirely consistent, but there is some support for the hypothesis that members of minority groups and persons with low income and less education are more socially vulnerable and thus more likely to report higher levels of fear (Gibson et al., 2002).

The victimization model offers another intuitively appealing explanation. Among the most studied predictors of fear of crime is respondents' past victimization experience. Common sense reasoning might lead one to expect that crime victims are more likely to be fearful than non-victims, all else being equal. Several studies report that past victimization does indeed significantly predict fear of crime (Braungart et al., 1980; Garofalo, 1979; Skogan and Maxfield, 1981), but other studies cast doubt on this conclusion (Baumer, 1985; Gates and Rohe, 1987; Hindelang et al., 1978; Garofalo and Laub, 1978; Liska et al., 1988; McGarrell et al., 1997; Quann and Hung, 2002). Cross-national comparisons also indicate that while victimization tends to be associated with fear of crime in different nations, the strength of the association is variable (Quann and Hung, 2002). These findings suggest that the correlation between victimization and fear of crime may be conditioned by the larger cultural context (Murck, 1997).

The most influential theoretical account of the determinants of fear of crime is the disorder model, also known as the "incivilities thesis." Largest amount of research attention has been on the effect of disorder. An early statement of "incivilities thesis" appears in James Q. Wilson's (1975) influential work, while Hunter (1978), Wilson and Kelling (1982), Lewis and Salem (1986), and Skogan (1990) further develop the core themes. The precise nature of the causal arguments differs in various formulations (for an analytic review, see Taylor, 2001). Nevertheless, the common element is the claim that disorderly social and physical conditions in urban communities are

a primary source of fear, crime, and community decline more generally.

Disordered social conditions include conduct in public spaces such as drinking, drunkenness, rowdy and unsupervised teen groups, neighbors fighting or arguing, solicitations for prostitutes, and drug sales. Physical disorder includes graffiti, litter, trash-filled vacant lots, abandoned cars, abandoned housing, and shuttered stores. These forms of social and physical disorder allegedly generate fear of crime and encourage residents to withdraw from the community, which weakens informal social control. Such areas become attractive locations for criminal activity given the lack of guardianship (see especially Wilson and Kelling, 1982). Disorder, fear of crime, and crime itself thus operate in concert to set into motion a spiral of decay and decline in urban neighborhoods (Skogan, 1990: 65).

Several studies have tested the incivilities thesis regarding the link between disorder and fear of crime with aggregated data at the street block level (Kurtz et al., 1998; Perkins et al., 1992; Wilson and Kelling, 1982). Other studies have assessed the thesis with neighborhood-level data (Skogan, 1990; Taylor, 1996; Taylor et al., 1985). In addition, two studies have used multiple waves of data to examine longitudinal patterns and reciprocal relationships (Markowitz et al., 2001; Taylor, 2001). Overall, the evidence from these aggregate studies largely supports the hypothesis of an association between disorder and fear of crime.

The relationship between disorder and fear has also been examined at the individual level using measures of perceptions of disorder (Covington and Taylor, 1991; Gibson et al., 2002; Lewis and Maxfield, 1980; Taylor, 1997). Most studies have found a positive and significant relationship between perceived disorder and fear of crime, although there is some evidence that social disorder is more strongly linked to fear than is physical disorder (LaGrange et al., 1992: 314; Rohe and Burby, 1988). A few studies have been based on contextual analyses and have included disorder as a

neighborhood-level variable in the prediction of individual perceptions (Covington and Taylor, 1991; Taylor, 1997; Taylor and Covington, 1993). The results of these analyses also indicate that disorder is positively related to fear of crime.

Recently, advances in hierarchical linear modeling (HLM) have stimulated further efforts to examine the effects of both individual-level and contextual variables jointly. Research by Perkins and Taylor (1996) combines data from a survey of 412 residents in 50 Baltimore neighborhoods with systematic observations, archival data, and census data. The analyses include three neighborhood-level indices of disorder, along with three measures of disorder at the individual level and age. Their results indicate that disorder positively influences fear of crime after controlling for neighborhood level proportions of nonwhite, mean age, and proportion of females.

An additional important study is the work by Rountree (1998). Her study addresses the multi-dimensional nature of fear. Past research has distinguished an emotional dimension of fear, which is more closely tapping psychological or physiological reactions of the respondents, from the cognitive dimension of fear, which is tapping perceptions of victimization risk (see also Ferraro, 1995; Ferraro and LaGrange, 1987). Rountree's study focuses on the emotional dimension of the fear of burglary and fear of violence. Her findings indicate significant effects of disorder on both fear of burglary and fear of violence.

Robinson et al. (2003) have reported another multi-level study. Their analyses are based on two-wave survey data of 305 residents from 50 street blocks, each from one of the 50 neighborhoods sampled in the city of Baltimore. The two-wave data allow for the estimation of lagged effects of disorder on fear of crime. The analysis controls for demographic characteristics, house value, and percentage of homeowners at the street block level, as well as incivility in the initial wave. The results reveal a significant lagged effect of perception of disorder on fear of crime, but no lagged effect

of a block-level measure of disorder on fear of crime. An unfortunate limitation of this study is that it does not control for victimization experiences.

In sum, theorizing and research based on data for Western nations have established the credibility of three important theoretical models for explaining fear of crime. Although the findings are sometimes mixed, socio-demographic characteristics reflective of vulnerability, victimization experiences, and indicators of disorder have emerged as strategic factors to be considered in the explanation of levels of fear of crime. The Western research on fear of crime is nevertheless limited in several important respects. In most studies, indicators of only some of the theoretical models are included and thus models are not fully specified. Also, despite the large amount of research on the effect of disorder on fear, few studies include measures of both individual-level, perceived disorder and neighborhood-level disorder. Thirdly, research has been based primarily on data from Western societies. Finally, few studies directly address the question of mechanisms through which fear of crime is produced. This paper addresses these issues.

III. THE PRESENT STUDY AND RESEARCH HYPOTHESES

The present study first conducts a multivariate assessment of the vulnerability, victimization, and disorder models–with data from a sample of households in contemporary urban China. We estimate comprehensive models that simultaneously include indicators reflecting all three major theoretical models, thus providing better control for confounding effects and a better test of the standard hypotheses. Studies that are unable to do so are susceptible to spurious associations. We also incorporate more direct indicators of the hypothesized mediating construct of "vulnerability." Further, going beyond the existing literature, we explore the mechanism through which disorder

might mediate the effect of other variables. Our primary hypothesis is that social disorder plays a central role in the production of fear of crime. It mediates the effect of other variables on producing fear. We explicitly examine the extent to which demographic characteristics, indicators of vulnerability, and victimization experiences exert indirect effects on fear of crime through individual perceptions of social disorder.

We derive our hypotheses concerning the social determinants of fear of crime from the three major theoretical models developed in the West. First, the vulnerability model commonly interprets correlations involving gender, age, education, income, and racial/minority status with reference to physical and social vulnerability. Consistent with theoretical interpretations and findings in the West, we hypothesize that females, those with less education and low income, and the elderly will express relatively high levels of fear,

As noted, we introduce two measures that can be regarded as more direct indicators of vulnerability: self-assessed physical strength and perceived capacity for self-defense/alertness regarding personal safety. Both measures are expected to exhibit significant negative effects on fear of crime. Moreover, the effects of demographic characteristics are expected to be reduced somewhat when the more direct indicators of vulnerability are included in the model.

The hypotheses derived from the victimization model are straightforward. Although the results of past research are mixed, we follow the majority of the existing studies to predict that both violent and property victimizations increase fear of crime.

The most influential theoretical model in the study of fear of crime is the disorder model. We assess the independent effects of both perceived disorder at the individual level and disorder measured at the neighborhood level. Based on the findings in the literature (e.g. Gibson et al., 2002), we expect a positive

association between perceptions of disorder and the fear of crime: those who perceive their neighborhood to be disorderly are likely to be highly fearful.

Neighborhood-level disorder is likely to affect fear in two ways. It seems plausible to anticipate that residents in disorderly neighborhoods will become aware of the disorderly behavior in their surroundings, and the resulting perceptions will serve as a proximate cause of fear of crime. The level of neighborhood disorder might also have an effect on fear of crime net of individual perceptions of disorder. High levels of disorder are likely to be accompanied by perceived disorder among many neighbors. To the extent that neighbors are fearful, fear of crime might spread through social contacts. In addition, to the extent that fear of crime leads neighbors to withdraw, as suggested by the "incivilities thesis," the accompanying social isolation might lead to heightened fear of crime even among those residents who do not perceive disorder themselves. We accordingly supplement our initial analyses of direct effects on fear of crime with analyses of the correlates of perceptions of disorder to assess potential indirect effects.

Our analyses are based on HGLM multi-level models that take into account dependence in the data and that estimate fixed effects with robust standard errors. Given the importance of social disorder in the literature, we pay particular attention to estimating its effects. We distinguish analytically the neighborhood-level disorder from individual-perceived disorder, and we simultaneously estimate the effect of each controlling for the other.

IV. DATA AND METHODS

A. SAMPLING AND DATA COLLECTION

The data were collected from a multi-stage survey of residents in the city of Tianjin, China, in 2004. Tianjin is the third largest city in China and is one of the four municipalities directly under the control of the central government

of the People's Republic of China, which gives Tianjin provincial-level status. At the end of 2004, the population of the Tianjin municipality was 10.24 million, of which 9.33 million were holders of Tianjin permanent residence (hukou). Among permanent residents of Tianjin, 5.56 million were urban in origin, and 3.76 million were rural in origin.

We used a multi-stage cluster sampling design that drew approximately 2,500 respondents who were 18 and over. Tianjin has 15 administrative districts and 3 counties. The six districts from which the sample was drawn include the Heping, Nankai, Hongxiao, Hexi, Hebei, and Hedong districts. Each district has approximately 6 to 10 City-Street Offices, which are government agencies of lowest level, directly supervising programs and activities of residential neighborhood committee, which is neighborhood organization elected by residents to manage their affairs and financially supported by City-street offices.

At the first stage of sampling, we randomly selected two City-Street Offices from each of the selected districts, yielding a total of 12 City-Street Offices. At the second stage, we drew two large offices that included a relatively large number of neighborhood committees from the 12 selected City-Street Offices. Five neighborhood committees were then randomly selected from each of these two large City Street Offices, while four neighborhood committees were randomly drawn from each of the remaining 10 City-Street Offices. A total of 50 neighborhood committees were thus obtained through a combination of purposive and random selection. Members of the research team met the supervisor in each of the selected neighborhood committees to explain the purpose and importance of the survey, the financial sources of the survey, and compensation for costs associated with administration. Upon securing agreements for assistance, the research team requested a complete list of households in that neighborhood.

Fifty-one households were selected from each of the 50 selected neighborhoods in hopes of reaching the target of 2,500 households. Using the household roster provided by the neighborhood committee in each selected neighborhood, the research team conducted systematic sampling. A starting point was randomly determined and every eighth household from each neighborhood was selected until the specified number of households was obtained. The research team defined a criterion of date for selecting a specific respondent from a selected household with more than one member 18 years old or older. The individual with a birthday closest to the criterion date was chosen to be the respondent.

Data were collected through anonymous, self-administered questionnaires at convenient sites within the neighborhood (e.g., recreational areas). With the assistance of the neighborhood committees, the research team contacted the respondents to schedule the administration of the questionnaire. The research team explained the significance of the research, assured respondents of confidentiality, and notified them of the financial compensation for participation. The respondentS were generally very interested in the study and were eager to participate. A total of 2,474 valid questionnaires were obtained, yielding an extremely high response rate -- 97%. Missing data on some variables result in a sample size of 2,448 for analyses of individual characteristics across the 50 neighborhoods.

B. MEASURES

The primary dependent variable for our analyses is self-reported fear of crime. Research has identified that fear is a multidimensional construct encompassing an emotional dimension and a cognitive dimension. The former refers to the psychological or physiological reactions to the threat of victimization, while the later refers to perception of victimization risk (Ferraro and LaGrange, 1987; Rountree, 1998). In this study, we follow Rountree (1998) and focus on emotionally experienced fear.

The specific measure is based on the response to the following question: "When you walk in the neighborhood that you live in at night, do you feel fear?" The response categories are "not at all" (1), "somewhat" (2), and "very much" (3).

The measures of socio-demographic characteristics are as follows. Gender is a dummy variable scored in the direction of "female." Age is represented by two dummy variables for "young" (ages 18-34) and "middle aged" (ages 35-54). The 55 and over age group serves as the reference category. Education is an ordinal measure with 3 categories: "illiterate and elementary school" (0); "middle school" (1); or "college and above" (2). The measure of income refers to monthly income per person for members of the household living together. The categories for income are: "below 500 Yuan" (1); "500-999 Yuan" (2); "1,000-1,999 Yuan" (3); "2,000-2,999 Yuan" (4); "3,000-3,999 Yuan" (5); "4,000 Yuan and above" (6).

Our two indicators of vulnerability are respondents' ratings of physical strength and ratings of self-defense/alertness. The measure of physical strength is based on responses to the item: "How would you rate your health/strength?" The other indicator of vulnerability is based on responses to the item: "How do you rate your capability for self-defense and your alertness about personal safety?" These two measures are scored as: "poor" (1); "average" (2); "good" (3); and "very good" (4). Higher scores thus indicate lower vulnerability.

The measures of criminal victimization encompass both violent and property victimization. They reflect reports of having been the victim of robbery, assault, personal theft, or having been "swindled" during the past five years. Personal violent victimization is a dummy variable scored "1" for respondents who report being the victim of either robbery or assault during the reference period, while personal property victimization is a dummy variable scored "1" for those reporting being a victim of either of the two

property offenses.

We measure perceived social disorder with an index based on the following three items, which are similar to those used in Western research:

"In the past six months, have you seen or heard youth groups fighting in your neighborhood?"

"In the past six months, have you seen or heard young hooligans creating trouble in your neighborhood?"

"In the past six months, have you seen or heard neighbors quarreling?"

The response categories to these three questions are: "often" (4); "sometimes" (3); "rarely" (2); and "never" (1). The measure of perceived social disorder is the sum of z-scores for these items (Alpha coefficient of reliability = .713).

Finally, our measure of neighborhood-level social disorder is based on the same set of items as is the individual-level measure, but aggregated to the neighborhood level. We computed the mean for these items for each of the 50 neighborhoods and summed the z-scores across the three aggregated items (Alpha coefficient of reliability = .793). Descriptive statistics for all measures are reported in the Appendix.

C. ANALYTIC STRATEGY

We assess our hypotheses about the determinants of fear of crime with Hierarchical Generalized Linear Ordered Logistic Regression (Raudenbush and Bryk, 2002). For this three category ordinal dependent variable (M=3), we derive 2 dummy variables $Y1_{ij}$ and $Y2_{ij}$

for case i in unit j as

$Y_{mij} = 1$ if $R_{ij} \leq m$, 0 otherwise

For example, with M = 3, we have

$Y_{1ij} = 1$ if $R_{ij} = 1$

$Y_{2ij} = 1$ if $R_{ij} \leq 2$

The probabilities Prob(Y_{mij} = 1) are thus cumulative probabilities. For example, with M = 3,

Prob(Y_{1ij} = 1) = Prob(R_{ij} = 1) = 1_{ij}

Prob(Y_{2ij} = 1) = Prob(R_{ij} = 1) + Prob(R_{ij} = 2) = 2_{ij}

Prob(Y_{3ij} = 1) = Prob(R_{ij} = 1) + Prob(R_{ij} = 2) + Prob(R_{ij} = 3) = 1

Since $Y_{3ij} = 1 - Y_{2ij}$, Y_{3ij} is redundant. We actually need only M − 1 dummy variables.

Associated with the cumulative probabilities are the cumulative logit link functions,

$$\eta_{mij} = \log\left(\frac{\text{Prob}(R_{ij} \leq m)}{\text{Prob}(R_{ij} > m)}\right) = \log\left(\frac{\phi_{mij}}{1 - \phi_{mij}}\right)$$

The level-1 structural model assumes "proportional odds",

$$\eta_{mij} = \beta_{0j} + \sum_{q=1}^{Q} \beta_{qj} X_{qij} + \sum_{m=2}^{M} \delta_m$$

Under the proportional odds assumption, the relative odds that $R_{ij} \leq m$, associated with a unit increase in the predictor, does not depend on m.

Here m is a "threshold" that separates categories m-1 and m. For example, when M = 4,

$$\eta_{1ij} = \beta_{0j} + \sum_{q=1}^{Q} \beta_{qj} X_{qij}$$

$$\eta_{2ij} = \beta_{0j} + \sum_{q=1}^{Q} \beta_{qj} X_{qij} + \delta_2$$

$$\eta_{3ij} = \beta_{0j} + \sum_{q=1}^{Q} \beta_{qj} X_{qij} + \delta_2 + \delta_3$$

We initially estimate an intercept only model to assess whether there is significant variation in fear of crime across neighborhoods in the sample. Next, we examine the effects of the socio-demographic variables on fear of crime, followed by the indicators of vulnerability and measures of personal victimization. The measures of individual perceptions of disorder and neighborhood-level disorder are then added to the models.

Our measure of perceived disorder is based on a composite index. Accordingly, we apply the standard hierarchical linear model in the analyses where perceived disorder serves as the dependent variable (Raudenbush and Bryk, 2002: 317-322).

V. RESULTS

The results of the HGLM analyses of fear of crime are reported in Table 1. Model 1 is an intercept only model. The variance component of the intercept is statistically significant (tau = .278, p < .01), indicating that fear of crime varies significantly across the neighborhoods in the sample.

Table 1. Hierarchical Generalized Linear Ordered Logistic Regression of Fear of Crime

Variables	1	2	3	4	5	6
Fixed Effects						
Intercept	-3.450**	-4.849**	-3.736**	-3.791**	-3.785**	-3.801**
	(0.113)	(0.232)	(0.250)	(0.256)	(0.263)	(0.263)
Demographic Variables						
Female	---	1.690**	1.687**	1.689**	1.775**	1.776**
		(0.105)	(0.108)	(0.110)	(0.114)	(0.114)
Young	---	0.362*	0.602**	0.575**	0.537**	0.539**
		(0.156)	(0.168)	(0.168)	(0.157)	(0.157)
Middle age	---	0.124	0.211	0.205	0.167	0.170
		(0.136)	(0.136)	(0.137)	(0.137)	(0.138)
Education	---	0.230*	0.286**	0.269*	0.205*	0.209*
		(0.105)	(0.106)	(0.105)	(0.105)	(0.105)
Income	---	-0.106*	-0.051	-0.056	-0.058	-0.055
		(0.047)	(0.051)	(0.051)	(0.056)	(0.056)
Vulnerability						
Strength	---	---	-0.173**	-0.172**	-0.164*	-0.165*
			(0.064)	(0.063)	(0.066)	(0.066)
Self-defense/alertness	---	---	-0.399**	-0.390**	-0.414**	-0.414**
			(0.069)	(0.068)	(0.068)	(0.069)
Victimization Experience						
Personal violent victimization	---	---	---	0.495*	0.300	0.305
				(0.231)	(0.246)	(0.247)
Personal property victimization	---	---	---	0.265*	0.189	0.193
				(0.123)	(0.125)	(0.125)

Table 1 (continued)

Variables	1	2	3	4	5	6
Perceived Disorder	---	---	---	---	0.196**	0.191**
					(0.024)	(0.024)
Neighborhood Disorder	---	---	---	---	---	0.042^a
						(0.022)
Random Effects						
Intercept, τ_{00} σ	0.278	0.341	0.342	0.340	0.303	0.295
χ^2	88.833	101.495	100.616	100.030	88.090	84.040
	**	**	**	**	**	**

^{a} $p < .10$　　* $p < .05$　　** $p < .01$

Hypotheses about the effects of socio-demographic characteristics can be assessed with the results in Model 2. Similar to findings in Western countries, females are significantly more fearful than males in Tianjin (b = 1.690, p < .01). The effects income are also in accord with expectations derived from the West. Low income respondents exhibit higher levels of fear (b = -.106, p < .05), consistent with the "vulnerability" interpretation.

The effects of age, however, differ dramatically from those commonly reported in the West. While there is no significant difference between the middle aged and the elderly (the reference category), the young exhibit significantly greater fear (b = .362, p < .05). Following the literature, we have hypothesized the elderly are more likely to be fearful. Our findings across models consistently indicate that the nature of the relationship is reversed in Tianjin. Education is also significantly related to fear, but as with age, the sign of the relationship is opposite to expectations (b = .230, p < .05). The highly educated (and presumably less socially vulnerable) are more fearful.

The two direct indicators of vulnerability are entered into the equation in Model 3. Both measures exhibit the expected negative associations.

Respondents who consider themselves fit and strong and those who rate their self-defense capabilities and alertness highly have lower levels of fear. These two variables statistically interpret the income effect observed in Model 2 but fail to interpret the effect of gender. The unexpected positive effect for "young" age effect becomes notably stronger when the indicators of vulnerability are taken into account.

The two measures of personal victimization are added to the equation in Model 4. The coefficients for both are positive and statistically significant. Not surprisingly, victims of crime in Tianjin are more fearful. Including the measures of personal victimization has little impact on the estimated parameters for the other individual characteristics. Next, perceived disorder is included in Model 5. The coefficient for the index of perceived disorder is, as expected, significantly positive. Respondents who detect disorderly behavior in their neighborhood report higher levels of fear. Interestingly, the effects of victimization experiences become non-significant when perceived disorder is included in the model. The effects of "young" age and education are also reduced when perceptions of disorder are controlled, although the reductions are not statistically significant.

Finally, Model 6 adds neighborhood disorder to the analyses. The coefficient for neighborhood disorder is in the expected, positive direction, and it reaches statistical significance with a one-tailed test. These results indicate that respondents who live in neighborhoods characterized by a high degree of disorder are more fearful than others, controlling for their individual characteristics, personal experiences with criminal victimization, as well as their own perceived disorder.

As noted, the results of our initial hypothesis testing reveal that the effects of victimization experience on fear of crime become non-significant when perceptions of disorder are included in the model. The unexpectedly positive effects of "young" age and education also decrease slightly when

perceived disorder is controlled. To further explicate the potential role of perceptions of disorder as a mediating variable, we have estimated HLM regressions with perceived disorder as the dependent variable. The results are reported in Table 2.

Table 2. Hierarchical Linear Regression of Perceived Disorder

Variables	1	2	3	4	5
Fixed Effects					
Intercept	0.013	-0.636**	-0.595**	-0.695**	-0.685**
	(0.076)	(0.149)	(0.220)	(0.217)	(0.207)
Demographic Variables					
Female	---	-0.128	-0.139	-0.140	-0.142
		(0.088)	(0.087)	(0.089)	(0.088)
Young	---	0.498**	0.533**	0.447**	0.459**
		(0.138)	(0.154)	(0.157)	(0.155)
Middle age	---	0.403**	0.407**	0.386**	0.392**
		(0.120)	(0.121)	(0.122)	(0.118)
Demographic Variables					
Education	---	0.298*	0.296*	0.273*	0.260*
		(0.117)	(0.118)	(0.115)	(0.111)
Income	---	0.015	0.022	0.016	0.019
		(0.055)	(0.055)	(0.055)	(0.052)
Vulnerability					
Strength	---	---	-0.072	-0.064	-0.065
			(0.084)	(0.083)	(0.082)
Self-defense/alertness	---	---	0.048	0.064	0.063
			(0.076)	(0.077)	(0.076)

Table 2 (continued)

Variables	1	2	3	4	5
Victimization Experience					
Personal violent victimization	---	---	---	1.052** (0.308)	1.042** (0.307)
Personal property victimization	---	---	---	0.492** (0.142)	0.482** (0.137)
Neighborhood disorder	---	---	---	---	0.219** (0.004)
Random Effects					
Intercept, τ_{00} σ	0.429	0.439	0.440	0.449	0.013
χ^2	128.688**	133.486**	133.695**	138.315**	2.691

* p < .05   ** p < .01

Again, we begin with an intercept only model (Model 1). The variance component of the intercept is statistically significant (tau = .429, p < .01), indicating that perceived disorder, similar to fear of crime, varies significantly across the neighborhoods in the sample. Model 2 includes the demographic variables. The effect of gender is not statistically significant; females perceive similar amounts of disorder as males. In contrast, young and middle age (the reference category is the elderly), and education all significantly affect perceived disorder, suggesting that a mediating process for these variables exists. The young and middle aged, as well as educated people, perceive significantly more disorder. This is part of the reason that they are more fearful. Model 3 adds the two measures of vulnerability. Both effects on perceived disorder are not statistically significant. These findings indicate that self-described vulnerable people perceive the same amount of disorder, and hence perceived disorder is not a reason for them to be more fearful. These findings are consistent with the relatively stable coefficients for vulnerability

across Models 4 and 5 in Table 1.

Model 4 adds the two measures of victimization to the model. Both violent victimization (b = 1.052; p < .01) and personal property victimization (b = .492; p < .01) increase perceived disorder. Recall from Table 1, Models 5 and 6, that the effects of personal victimization on fear of crime become non-significant when the measure of perceived disorder is entered into the model. These earlier findings, combined with those in Model 4 of Table 2, indicate that perceived disorder does in fact mediate the effect of victimization.

Lastly, Model 6 adds neighborhood-level disorder into the analyses. As expected, the coefficient is significantly positive (b=.219, p<.004). Higher levels of neighborhood disorder increase residents' perceived disorder. This finding provides the final link to establish that neighborhood-level disorder has both a direct effect on fear of crime (Model 6 of Table 1), and an indirect effect through perceived disorder.

VI. SUMMARY AND CONCLUSIONS

Using original survey data for the city of Tianjin, we investigate the mechanisms through which fear of crime is produced. We tested the role of social disorder in mediating the effects of other theoretically important variables reported in the literature. We started with assessing three general theoretical models – the vulnerability model, the victimization model, and the disorder model with Tianjin data. We then examine the intervening mechanisms that social disorder influence fear of crime. The results of hierarchical regressions reveal both points of convergence and divergence across socio-cultural contexts and provide evidence on the mediating role of social disorder.

Consistent with the main thrust of research in the West, we find support

for the victimization model. Respondents who have experienced violent victimization or property victimization exhibit higher levels of fear. Interestingly, our analyses further suggest that perceived disorder statistically interprets the effect of victimization experience. The coefficients for both violent and property victimization fall below significance when perceived disorder is entered into the regression equation. This interpretation of mediating effects assumes that victimization is causally prior to perceived disorder, which in turn is causally prior to fear of crime. It seems likely, however, that these phenomena are interrelated in complex feedback loops, as captured in the imagery of "spirals" of decay and decline (Skogan, 1990). Perceptions of disorder are likely to generate fear, promote social withdrawal, and increase the actual risks of criminal victimization. The precise nature of these causal processes cannot be disentangled with the available data.

Our analyses also underscore the utility of conceptualizing and operationalizing disorder at multiple levels – the individual and neighborhood. Both perceived disorder and neighborhood-level disorder are positively associated with fear of crime. In addition, neighborhood-level disorder exhibits the expected positive effect on perceptions of disorder. The effects of neighborhood-level disorder thus appear to be both direct and indirect via perceived disorder.

Accounting for the indirect effect is straightforward: residents become aware of the disorder in their neighborhood and become fearful as a result. The processes associated with an indirect effect, however, are less obvious. We have speculated that widespread perceptions of disorder by neighbors increase the likelihood of coming into contact with others who are fearful, and fear of crime might spread even to those who do not perceived disorder themselves. Another possibility is that the patterns of constrained social interaction associated with perceptions of disorder tend to generate fear among all residents of the neighborhood. Again, while our data do not allow

for the direct examination of such processes, the results of our analyses indicate that further research into the multi-level processes linking disorder and fear of crime in the Chinese context is highly promising.

With respect to demographic covariates of fear of crime, we detect both similarities and differences in comparison with Western research. Findings for gender and income replicate those typically observed in the West. Females and low-income residents report higher levels of fear. We also observe that the income effect conforms to the conventional "vulnerability" interpretation. The negative coefficient for income becomes statistically non-significant when the two indicators of vulnerability (strength and self-defense/alertness) are controlled. Evidently, low-income respondents are more fearful because they judge themselves to be more vulnerable along the dimensions measured.

The effect of gender, in contrast, proves to be highly robust. The tendency for females to be more fearful is virtually unchanged when the indicators of vulnerability are entered into the regression model. The sturdy gender effect might be explained with reference to Mark Warr's (1984) concept of "differential sensitivity to risk." According to this interpretation, women are more likely to judge potential victimization as serious because they make subjective linkages among offenses. For example, women are more likely to link burglary or robbery with sexual assault and murder. Hence, even though the objective level of risk of victimization tends to be lower for women, they tend to be more fearful than men. It seems plausible that similar processes would emerge in China, but further research is needed to demonstrate such gender differentials in sensitivity to risk.

The findings for the two other demographic characteristics under investigation – age and education -- diverge notably from those reported in the West. Rather than being less fearful, the young and the educated are more fearful in urban China. Our analyses of intervening mechanisms suggest that these patterns emerge in part because of differential perceptions of disorder.

As reported in Table 2, younger respondents (in contrast with the elderly) and more educated respondents perceive higher levels of disorder, which in turn increases fear of crime.

We propose that these seemingly anomalous relationships can be accounted for with reference to some of the distinctive features of China's political and social context. The differential perception of disorder revealed in our models may be largely due to differential media exposure. Research in the Western literature has emphasized the importance of the media in influencing fear of crime. The media in China have changed dramatically over the course of the past few decades. In a separate paper (Liu et. al., in press), we focuses on how social change in China has produced generational and educational gap, how different exposure to media by age and education has produced a differential exposure to perception of disorder to explain the seemingly anomalous effects of age and education. We caution readers that future research is required to assess the validity of our ex post facto interpretations of the age and education effects. Nevertheless, we suggest that the full set of findings reported above underscores the utility of extending the horizons of inquiry into fear of crime beyond the confines of Western societies. Some of the relationships well documented in the West appear to be robust across socio-cultural contexts, but the identification of distinctive patterns in the social structuring of fear of crime suggests that much is still to be learned about the underlying processes. We accordingly call for further efforts to assess systematically the applicability of Western criminological theories and to replicate Western findings in China and other non-Western settings.

Appendix: Descriptive Statistics[1]

	Mean	SD	Minimum	Maximum
Dependent Variable				
Fear of crime	1.34	0.54	1.00	3.00
Individual Characteristics				
Female	0.49	0.50	0.00	1.00
Young	0.31	0.46	0.00	1.00
Middle age	0.46	0.50	0.00	1.00
Education	1.14	0.54	0.00	2.00
Income	1.91	0.91	1.00	6.00
Strength	2.50	0.88	1.00	4.00
Self-defense/alertness	2.60	0.78	1.00	4.00
Victimization Experience				
Personal violent victimization	0.03	0.18	0.00	1.00
Personal property victimization	0.15	0.36	0.00	1.00
Individual Perceived Disorder	0.01	2.39	-3.16	9.52
Neighborhood Disorder	-0.00	2.52	-6.19	5.51

[1] Based on 2,448 respondents across 50 neighborhoods.

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