THE ROLE OF SOCIAL CONTROL ON THE RELATIONSHIP BETWEEN FEAR OF CRIME AND SELF-RATED HEALTH IN URBAN NEIGHBOURHOODS: A CASE STUDY OF PENANG, MALAYSIA

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Abstract

Fear of crime is implicated as an urban stressor that has negative consequences on health outcomes, yet few studies have explored the direction of the relationship between fear of crime and health, or tested the mediational effects on this relationship. The purpose of this study is to examine the mediating role of social control on the relationship between fear of crime and self-rated health. A sample of 247 residents in Penang, Malaysia was analysed using structural equation modelling. The results demonstrated the significant direct relationship of fear of crime and social control in explaining self-rated health. However, social control does not mediate this relationship, implying that the pathway connecting fear of crime and health appears to be direct, rather than via social control. Although fear of crime is associated with poor health, social control helps to enhance health and well-being. This study is concluded by highlighting the ways in which these social factors help improve health and well-being within residential contexts.

Keywords: Fear of crime, social control, health, mediation effect, neighbourhood.

1 INTRODUCTION

Research on fear of crime is a topic of increasing scholarly interest in recent years as it has direct impact on health and wellbeing. Both the social and physical environments have been linked to individuals' likelihood of being physically active. Research has suggested that the safer respondents perceive their area of residency, the more days a week they engage in physical activities in the neighbourhood environment (Stafford et al., 2007; Wallace et al., 2018) and consequently this may affect their health conditions (Lorenc et al., 2012).

The term *fear of crime* is often used to cover different dimensions of fear such as not being prepared to go out alone especially at night or worry about specific offences. It is often linked to the perception and concern for safety that may or may not be the result of crime. However, what causes fear of crime is still to be ascertained. Many people have fears although they have not actually been victimised. In the early 1970s, it was thought that fear of crime was due to crime itself. However, this notion was discarded when it was found that fear of crime was more widespread than crime itself and that crime rates do not necessarily correlate

well with fear of crime even at the neighbourhood level (Taylor & Hale, 1986). According to Shapland and Vagg (1988), fear of crime is a greater social problem than crime itself because of a more substantial, restrictive and painful effect. Skogan (1990) suggested that fear of crime facilitators are based on people's perception of the surrounding environment which is known as one of the cues of social and physical disorder. Franklin and Franklin (2009) stated that fear of neighbourhood's disorder could be resulted from the absence of neighbourhood concern and a lack of informal social control that may threaten individuals more than actual victimisation.

Fear of crime may affect a range of physical and mental health outcomes such as physical activity and social control. The term informal *social control* refers to the willingness of individuals to intervene when problems occur in the neighbourhood (Sampson & Groves, 1989). When deciding to engage in physical activities in the neighbourhood environment, residents may examine the social environment to determine whether it is safe to do so (Wallace et al., 2018). This implies that perceptions of safety towards the neighbourhood may alter episodes of physical activities through estimations of safety.

There is a growing body of evidence that supports the notion that the perception of a neighbourhood as an unsafe place has been linked to poor health outcomes (Baum et al., 2009). Considerable attention has been given to the concept of social control because of its effect on enhancing the residents' sense of belonging in their local community while promoting healthier communities (Marzbali et al., 2016). Guided by social disorganization theory, the evidence suggests that residents' perceptions of safety are associated with the extent to which they interact with their local environment and connect with others (Comstock et al., 2010). Furthermore, social control as a component of collective efficacy, namely, a measure of residents' willingness to intervene when problems occur in neighbourhood, has been related to positive health conditions (Baum et al., 2009; Lorenc et al., 2012; Wallace, 2012).

1.1 Theoretical framework

Research has identified many aspects that are related to health and wellbeing. Although the link between fear and social cohesion has been thoroughly studies, the relationship between fear and health has seldom been examined in the literature (Marzbali et al., 2016). Meanwhile, direct assessments of the links between fear of crime and social control as it influences individuals' health conditions are still rare in urban planning literature. The current study aims to address the lack of research on fear of crime and health outcomes by presenting a unique exploratory empirical investigation of the direct and indirect impact of fear of crime on self-rated health in a multi-ethnic society. This paper draws on data from a case study of Penang, Malaysia to show the relationship between worry about crime and health outcomes. The model shown in Fig. 1 was used to test the following hypotheses.

H1 Fear of crime is negatively associated with self-rated health.

H2 Social control is positively associated with self-rated health.

H3 Fear of crime is negatively associated with social control.

H4 Social control mediates the relationship between fear of crime and self-rated health.

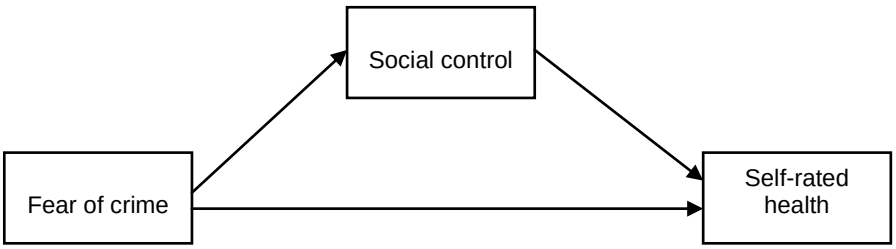

Fig. 1. The research model

2 METHODS

2.1 Site Selection

Malaysia is a unique country that has citizens with various races, cultures and languages living together. The pattern of social interactions among the different ethnic groups has been a major focus in Malaysia (Marzbali et al., 2019). Addressing the crime-community relationship is especially important for countries such as Malaysia because of the diverse religious and cultural background of its population as the studies have

found a low social integration in such multiracial communities.

The contribution of this paper is on empirical examination and validation of social disorganisation theory across a residential neighbourhood in Malaysia by employing the mediational effect of social control. There is no doubt that there are countless of aspects that can be taken into account across various areas encompassing diverse culture and neighbourhoods such as social and physical factors (Marzbali et al., 2019).

To capture the information on neighbourhood social environment, a survey was conducted in Penang, Malaysia, which covered a sample of 274 residents in a homogeneous neighbourhood in Penang, Malaysia. This study utilises probability sampling based on a systematic sampling with random start method to select samples from the population. The surveys were conducted in both English and Malay based on the respondent's preference, and they required approximately 15 minutes to complete. Eligibility criteria for the study survey included: (1) length of residence at least 12 months, and (2) age of at least 18 years.

The study area is located in the central part of Penang, Malaysia. Penang is one of the most developed Malaysian states and has a population of 1.77 million people (Department of Statistics Malaysia, 2019). The study area is a typical medium class neighbourhood, and was plantation land in the 1960s, which was rapidly transformed into the residential neighbourhood that it now is. It hence stands as one of the oldest developments on the island of Penang State, and is still popular to this day for its central location with new development mushrooming up on its outskirt. Houses located within the study neighbourhood are typically double-storey with several single-storey houses. The area consists of approximately 1,600 landed properties. To select samples from the population, the current study utilises a systematic sampling with random start method at intervals of every fifth unit. The study focused on residents of landed properties, as these were the predominant type of dwelling in the area.

The survey illustrated that almost 90% of the respondents were Chinese, 7% Malay, and 3% Indian, indicating a homogenous neighbourhood as compared to other neighbourhoods in Penang Island. The majority of dwellings in the study area were homeowners (87%) and 13% were tenants. Of a total 247 respondents, 78% were married or living as married, and almost 50% of residents were male. Slightly over 73% of respondents have lived in the property for at least 10 years, suggesting a very stable neighbourhood with long-term occupiers.

Based on the latest crime statistics, residential break-ins are common in Malaysia and landed houses are the most commonly targeted by the burglars (OSAC, 2019). High-rise residential complexes with 24-hour security guards and electronic access control systems have a much lower burglary rate than other house types (OSAC, 2019). According to Inspector-General of Police (IGP) Malaysia, fear of crime is still high among the society despite the 11.7% decrease in the overall crime index compared to the previous year (Harun, 2018), indicating that further studies are needed in terms of fear of crime in this context.

2.1.1 Survey Instrument

The study is quantitative in nature, thus prompting residents to respond to a set of self-administered questionnaires. Apart from providing their demographic information, participants responded to 15 statements that reflect fear of crime, social control and self-rated health. Table 1 presents the study variables with respective indicators. Fear of crime was measured on a 7-point Likert scale ranging from 1, 'extremely not worried', to 7, 'extremely worried'. As shown in Table 1, this variable was derived from the question: in your everyday life, how worried are you about a number of situations? In this study, social control was measured to examine its mediation role on the relationship between fear of crime and health. Four items were used to measure social control referring to residents' informal social control behaviour over their area of residency. The response categories ranged from 1, 'very unlikely', to 7, 'very likely'. Table 1 further illustrated that two items were used to measure general self-rated health and quality of life on a 5-point Likert scale.

Table 1. Study variables with respective indicators

Construct	**Item**	**Description**
Fear of crime- Fear of crime refers to emotional responses of fear of being a victim of specific crime types such as being robbed. Items were adapted from the work of Foster et al. (2010) and Marzbali et al. (2016) (1= extremely not worried, 7= extremely worried)		
	Worry1	Getting burglarised while no one is at home.

	Worry2	Getting burglarised while you are at home.
	Worry3	Yourself or someone in your family getting assaulted.
	Worry4	Having your vehicle stolen in this neighbourhood.
	Worry5	Having things stolen from your car in this neighbourhood.
	Worry6	Being robbed or mugged in this neighbourhood.
	Worry7	Getting physical attacked because of your ethnic origin or religion in this neighbourhood.
	Worry8	Yourself/ someone in your family being sexually harassed in this neighbourhood.
	Worry9	Having your property damaged by vandals.
Social control- Items were adapted from Bellair and Browning (2010), and Sampson et al. (1997). (1=very unlikely, 7=very likely)		
	SC1	Children were skipping school and hanging out on a street corner.
	SC2	Children were spray-painting graffiti on a local building.
	SC3	Children were showing disrespect to an adult.
	SC4	A fight broke out in front of their house.
Health- Items were adapted from Marzbali et al. (2016). (1= poor, 5= excellent)		
	Health1	In GENERAL, would you say your health is..
	Health2	How would you describe your overall quality of life..

2.1.2 Statistical Analyses

The proposed model and hypothesis testing is conducted using Partial Least Squares (PLS) analysis with the SmartPLS 3 software (Ringle et al., 2015). PLS was chosen because of its appropriateness to the exploratory nature of this study in which some of the hypothesized relationships between the variables have not been previously tested. Likewise, PLS is more appropriate when a research model is at its infancy and it avoids the limitations of covariance-based SEM such as sample size and restrictions stemming from modelling complexity like indirect effects (Wetzels et al., 2009). Nonparametric bootstrapping (Wetzels et al., 2009) was applied to test the significance of the path coefficient between latent variables as well as between the latent variables and respective manifest variables. The study tested the measurement model (validity and reliability) and structural model (testing the relationship among variables) to finalise the outcome. In addition to the assessment of the path coefficient, there are four criteria that need to be tested to examine the structural model: coefficient of determination (R^2), effect size (f^2), variance inflation factor (VIF) and predictive relevance (Q^2).

3 RESULTS AND FINDINGS

3.1 Measurement Model Results

The measurement model evaluation requires the four things: outer loadings, convergent validity, composite reliability and discriminant validity (Tables 2, 3). The threshold value of composite reliability for a given construct is 0.7 (Bagozzi & Yi, 1988). The Table 2 posits that all the constructs have composite reliability value more than 0.70. The measure of convergent validity is the Average Variance Extracted for which the threshold value is 0.5 (Fornell & Larcker, 1981). Consequently, all the constructs possess the convergent validity (Table 2).

The SmartPLS 3 software offers a unique measure to establish the discriminant validity for a pair of two constructs: heterotrait-monotrait (HTMT) ratio and confidence interval up. The liberal threshold values for the HTMT-ratio and corresponding confidence interval up are less than 0.85 and 1 respectively (Henseler et al., 2015). Consequently, HTMT ratios and the corresponding confidence intervals up for each pair are less than 0.85 and 1 respectively (Table 3). Hence, model possesses the discriminant validity.

Additionally, the possibility of common method variance was examined using Harman's one-factor test (Podsakoff et al., 2003). According to these authors, common method variance is present when only one factor emerges from a factor analysis or when the first factor explains more than 50% of the variance. In this light, all the items for the constructs were introduced into a factor analysis and the un-rotated matrix indicates that the first factor explains 48% of the variance. As such, common method variance is not an issue in this study.

Table 2. The measurement model results for the latent constructs

Construct	Items	Loadings	Composite reliability (CR)	*t* value	Average variance extracted (AVE)
Fear of crime	Worry1	0.860	0.970	31.992***	0.782
	Worry2	0.919		59.906***	
	Worry3	0.907		42.083***	
	Worry4	0.937		81.116***	
	Worry5	0.908		55.424***	
	Worry6	0.917		65.909***	
	Worry7	0.834		29.318***	
	Worry8	0.757		16.492***	
	Worry9	0.905		56.630***	
Social control	Control1	0.909	0.960	41.589***	0.856
	Control2	0.920		51.570***	
	Control3	0.940		110.062***	
	Control4	0.931		59.468***	
Self-rated health	Health1	0.900	0.901	30.577***	0.819
	Health2	0.911		38.801***	

Note. *** $p<.01$

Table 3. Heterotrait-Monotrait (HTMT)

	Health	Fear of crime
Fear of crime	0.314 **CI.90** (0.181, 0.434)	
Social control	0.274 **CI.90** (0.156, 0.380)	0.092 **CI.90** (0.047, 0.206)

3.1.1 An Assessment of the Structural Model

Table 4 depicts the results of path analysis used to test the hypothesis of direct effects between latent variables. The results indicated that the impact of fear of crime on health (β=-0.254, p<0.01) is negative and significant (as consistent with the literature, e.g., Lorenc et al., 2012, and Marzbali et al., 2016), implying that those who are worried about becoming a victim of a particular crime type reported lower self-rated health as compared to those who are not worried. Social control has a significant and positive impact on health (β=0.223, p<0.01). In line with previous studies (e.g., Dlugonski et al., 2017), the results suggest that more informal social control is associated with greater self-rated health. However, as shown in Fig. 2, the direct association between fear of crime and social control is not significant (β=-0.091, p>0.05). Hence, the results provide support for H1, H2, but not H3. Based on the R^2 values, result reveals that approximately 12% of the variance in self-rated health is explained by fear of crime and social control.

Table 4. Path coefficient and hypothesis testing (direct effects)

Hs	**Relationship**	***β***	***t* value**	**Decision**	***f*²**	***VIF***
H1	Fear of crime→Health	-0.254	4.567***	Supported	0.073 (Small)	1.008
H2	Social control→Health	0.223	4.470***	Supported	0.056 (Small)	1.008
H3	Fear of crime→Social control	-0.091	1.436	Not-supported	0.008	1.000

Beta = regression weight, *t* values are computed through bootstrapping procedure with 247 cases;

*** p<0.001

In addition to testing the three direct relationships, the current study estimates a mediating relationship. The *t* value for the mediating effect was computed through a bootstrapping procedure as suggested by Hayes (2009) with 1,000 samples. According to Hayes (2009), tests that assume normality of the sampling distribution should not be used to assess indirect effects and suggests the use of a bootstrapping procedure to test the indirect effects. The *t* values for both direct and indirect effects were computed through a bootstrapping procedure. It should be noted that the *t* value for the indirect effect is obtained by dividing the *ab* by the standard error (SE) of the indirect effect. The SE is the standard deviation of the repeated bootstrap estimates of the indirect effect. The result shows that the *t* value of the indirect effect (H4) is not significant at the 0.05 level. Therefore, the results do not support H4.

The purpose of calculating the effect size (f^2) is to estimate the extent of the influence of an independent latent variable on the dependent variable. Effect size is based on the change in the coefficient of determination (R^2). According to Chin (1998), the values of 0.02, 0.15 and 0.35 represent the level of effect size as small, moderate and substantial, respectively. As shown in Table 4, the f^2 for social control and health were 0.056 and 0.073 respectively. Thus these two variable have a small impact on self-rated health.

We evaluated for multicollinearity among the variables in the model, and did not find any cause for concern using the criteria of variance inflation factor (VIF), which were (Table 4) all below the suggested threshold of 5.00 (Hair et al., 2016). As suggested by Hair et al. (2016), the predictive relevance of the model through the blindfolding procedure was examined. The Q^2 values for social control (Q^2 = 0.005) and health (Q^2=0.092) are >0, suggesting that the model has sufficient predictive relevance.

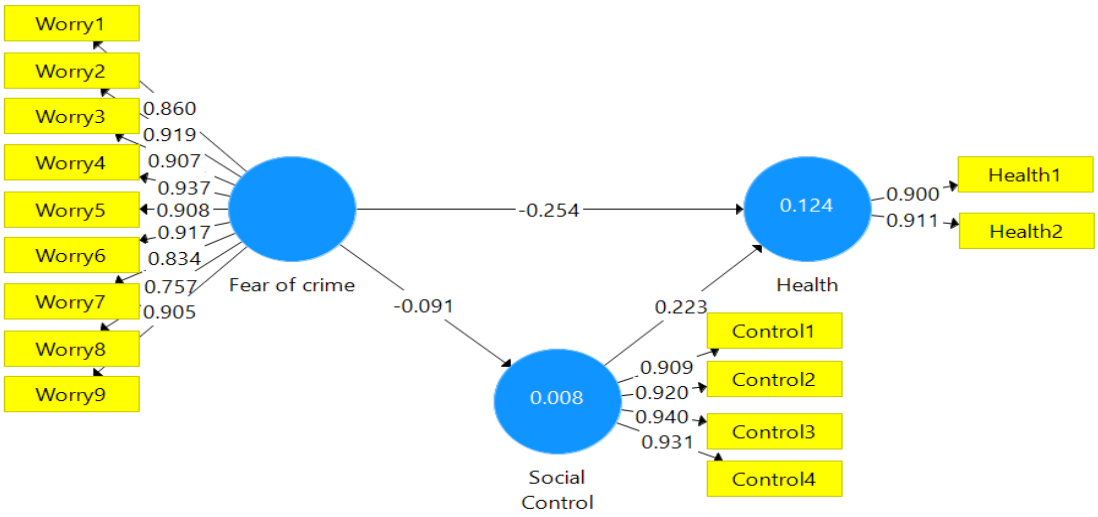

Fig. 2. The parameter estimates of the PLS analysis

4 CONCLUSIONS

Fear of crime is the central concept for examining neighbourhood dynamics. Studies have reported an inverse association between fear of crime, and mental and physical health. There are two ways that fear of crime can affect health and wellbeing. First, high perceptions of crime and disorder over the area of residency inspire that dwellers permit infractions against social order and are less likely to intervene to prevent disorderly. Second, when residents feel more worry about becoming a victim of a crime over their surrounding environment, they would prefer to spend their leisure times at home, and unlikely to be in relationship with neighbours. Therefore, residents retreat at home and do not spend time in public spaces, which contribute to reduce the capacity of the community to implement social controls, indicating a lack of social control and consequently poor health outcomes.

Consistent with a broad range of the literature, the results of the current study suggest that fear of crime is associated with poor health (Lorenc et al., 2012; Marzbali et al., 2016; Stafford et al., 2007). Participants reporting greater fear were more likely to have lower self-rated health scores. Meanwhile, we found no significant association between fear of crime and social control, and as a consequence, social control did not help explain the link between fear of crime and health. This is because social control does not mediate this relationship, implying that the pathway connecting fear of crime and health appears to be direct, rather than via social control. Studies suggested that those with higher perceptions of fear, saw friends less often, exercised less and participated fewer in neighbourhood activities as compared with less fearful participants (Stafford et al., 2007; Wallace et al., 2018), resulting in weaken social ties and reducing the capacity of the community to implement social controls. However, based on the results of the study, the mediating role of social control in the relationship between fear of crime and health remains still unclear.

Although our findings are generally consistent across neighbourhoods, there are some noteworthy aspects for improvement. As the results reveal that there is no direct association between fear of crime and social control over the residential area, we call for further research to better understand the dynamics of informal social control in neighbourhoods. As proposed by Sampson et al. (1997), the construct of collective efficacy is a function of interrelated personal efficacy beliefs, including two elements namely, the social cohesion among neighbours and their willingness to intervene on behalf of a common good. Research has suggested a strong and negative relationship between collective efficacy, and both crime and the fear of crime (Yuan & McNeeley, 2017). Meanwhile, research has indicated that social cohesion promotes health (Dlugonski et al., 2017) and suggested that future research would benefit from a comprehensive study on the relationship between fear of crime and collective efficacy in residential settings (Marzbali et al., 2019). As the study used social control as a mediating variable, future research might bring new insights to the body of knowledge by focusing on collective efficacy as a mediating variable in the relationship between fear of crime and health. We conclude that residents' insecurities about crime are assumed to erode health and wellbeing as well as community social behaviour. Therefore, organising community-based activities would help improve informal

social control, thus creating willingness to intervene on behalf of a common good and enhancing health and wellbeing.

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