Empowering the Bystander: The Role of Efficacy Beliefs in Guardianship

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Abstract

Despite declining crime rates in the Netherlands, public feelings of unsafety are on the rise, addressing the need for an increased understanding of what motivates bystanders to intervene in crime situations. Protection Motivation Theory was utilised to examine the effect of self-efficacy and response efficacy on willingness to intervene. Six different crime vignettes were developed for the experiment, each containing four conditions: control, self-efficacy, response efficacy, and both. The four answer options ranged from doing nothing to intervening, measuring willingness to intervene as an ordinal variable. Self-efficacy was found to significantly influence the likelihood of intervening, either alone or combined with response efficacy. Response efficacy itself did not show any significant effect. Additionally, the perceived realism of the vignettes increased the willingness to intervene. Overall, the findings illustrate that the belief in one's capability outweighs the belief in the effectiveness of the action. This study illustrates that PMT is a useful extension to the already existing literature on guardianship. Future research should explore the role of response costs and adopt a more extensive design, entailing virtual reality and longitudinal research.

Empowering the Bystander: The Role of Efficacy Beliefs in Guardianship

Crime is on the decline. In 2024, approximately 812,000 crimes were reported in the Netherlands (Centraal Bureau voor de Statistiek [CBS], 2025), representing a slight decrease compared to the 816,000 crimes reported in 2023. However, violent crime, encompassing burglary, armed robbery, and street crime, has seen a substantial drop in the last decade, with reports going down from 100,000 in 2014 to 78,000 in 2024. Despite the positive trend of decreasing crime rates, inhabitants of the Netherlands do not feel safer. Overall unsafety feelings saw an increase of two per cent in 2023, reaching a level of more than one-third (34%) of the total population (CBS, 2024).

This paradox acknowledges the need for understanding public responses to crime situations. Research into the topic, however, is not a thing of recent years. Not responding to a crime situation has been thoroughly researched, for example, by Darley and Latané (1968), who coined the term “bystander effect”. This phenomenon attempts to explain why onlookers do not respond to individuals in need during emergency situations, which, according to Darley and Latané, is due to the diffusion of responsibility amongst the bystanders. Yet, that explanation is only one side of the story. To understand more about why bystanders do make the effort to respond to crime situations, insight into how the crime occurs in the first place is imperative.

The Routine Activity Theory (RAT) (Cohen & Felson, 1979) sheds light on this “how” by introducing the three necessary components for crime to occur: a motivated offender, a suitable target, and lastly, the absence of a capable guardian that could prevent the crime. Changes to these components lead to influences in crime rates, which were recently made apparent due to the COVID-19 pandemic. The lockdown drastically affected, due to more people being at home, two out of the three components of the RAT: a suitable target and a capable guardian. This development significantly decreased residential burglaries, as Felson et

al. (2020) examined in their study on burglary rates. The presence of a capable guardian proves to have a vital role in disrupting the convergence of a motivated offender with a suitable target (Hollis-Peel et al., 2011), highlighting the importance of guardianship.

Guardianship

The concept of guardianship was initially conceptualised by Cohen and Felson (1979) as the presence of capable individuals to prevent a crime from happening. This definition was further developed by Reynald (2008) into the presence and behaviour of individuals who can discourage crime through monitoring and/or intervention, which is the interpretation used in the current paper. As Cohen and Felson only had the availability of a capable guardian in their formulation, Reynald added the willingness to intervene and the capability to monitor components into the formula. Within the broad concept of guardianship, a distinction is necessary between formal and informal guardianship.

Formal guardianship involves individuals who have a professional obligation to try to intervene in criminal situations, relating to police officers, security guards, etc. In contrast, informal guardianship refers to common citizens, bystanders, who deter crime with their behaviour and active presence in a situation; it is “an informal process through which citizens protect or defend targets or victims against victimisation” (Reynald, 2018, p. 6). The interaction between formal and informal guardianship was found to be effective in high-risk neighbourhoods in Mexico City, with informal guardianship acting as an effective moderator for formal interventions, such as CCTV monitoring (Vilalta et al., 2023). Nevertheless, informal guardianship on its own can also be effective, as a virtual reality study by Van Sintemaartensdijk et al. (2020) revealed that the mere presence of a guardian can also deter burglars.

However, guardianship's impact is not only determined by being formal or informal; the context and individual characteristics of the guardian also play a crucial role (Barnum et al., 2024; Ejbye-Ernst et al., 2020). Within cyberbullying, for example, it was found that previous victimisation increases the chance that an individual intervenes in a similar situation (Van Cleemput et al., 2014). Furthermore, in a CCTV-based study by Liebst et al. (2019), gender appeared to have a significant role in the likelihood of intervening, with males displaying a higher likelihood than females.

The relationship between individual differences and people's willingness to intervene is an area of research where criminology and social psychology converge. Whereas the RAT and guardianship show who is capable of intervening, they do not present an answer to the psychological processes of why someone intervenes. Individuals' beliefs and attitudes, such as self-efficacy and response efficacy, are highlighted as significant factors in driving bystander intervention (Desmet et al., 2012). Self-efficacy encompasses the belief in one's own capabilities, and response efficacy regards the belief that the action will actually be helpful. Therefore, utilising a framework such as the Protection Motivation Theory (PMT) (Rogers, 1975), which encompasses both mentioned efficacies, might explain the motivation behind the willingness to intervene of guardians.

Protection Motivation Theory

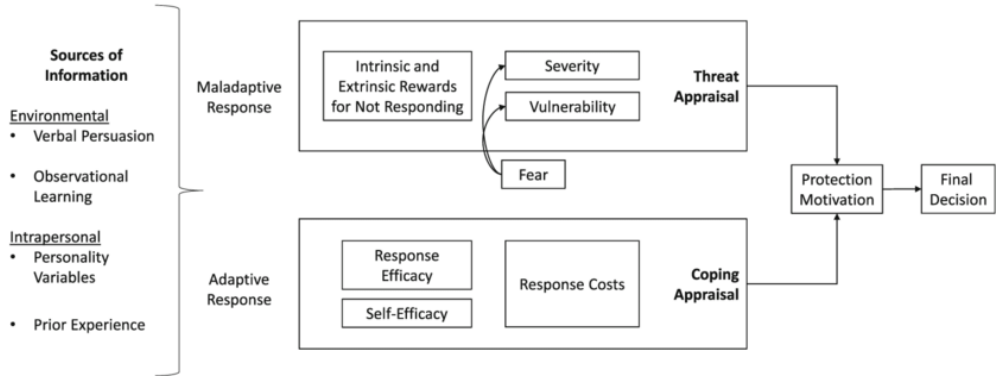
The PMT was first introduced by Rogers in 1975 to understand the effect of fear appeals used in health psychology. Later, he revised and extended the theory to the version we now know (Rogers, 1983). Three components are outlined: sources of information, cognitive mediating processes, and coping modes. The first element involves the intrapersonal factors and the inputs that individuals receive from environmental cues. The second is the main element of the PMT and encompasses the beliefs and attitudes, comprising the threat appraisal on the one side and the coping appraisal on the other. The last element is a choice that

depends on the outcome of the cognitive mediating processes and involves either adaptive or maladaptive coping with the situation.

The aforementioned choice is the ultimate motivation to protect oneself from a threat, which leads to the decision to behave or not to behave. A strong protection motivation would lead to an adaptive response, for example, wearing a mask during COVID-19, and a weak protection motivation would lead to a maladaptive response, e.g., doing nothing. As shown in Figure 1 below, the path towards protection motivation leads through the combination of the coping appraisal and the threat appraisal.

Figure 1

The Structure of Protection Motivation Theory



Note. Adapted from Rogers (1983).

First, the threat appraisal entails the individual's perception of the seriousness and their susceptibility to the threat; it can be further dissected into three components: perceived severity, perceived vulnerability, and the possible rewards for not responding (Rogers, 1983). These rewards can be either extrinsic or intrinsic, for example, saving time or the relief of avoiding a conflict, respectively. Perceived severity involves the perception of what the consequences could amount to; higher levels have been found to increase the motivation to engage in health-protective actions, as identified by Hedayati et al. (2023). Perceived

vulnerability, on the other hand, is the belief that the threat will happen to the individual themselves. Furthermore, a study on workplace harassment demonstrated that employees are more likely to protect themselves from harm if perceived vulnerability is high (Atta et al., 2021).

The coping appraisal involves three different parts, which all deserve a clear explanation: self-efficacy, response efficacy, and the response costs. Starting with self-efficacy, which refers to an individual's belief in their capability to perform the actions required to achieve the outcome (Bandura, 1977). Self-efficacy has proven to be crucial across the most researched domains of the PMT: health behaviour, cybersecurity, and environmental behaviour (Hedayati et al., 2023; Li et al., 2021; Little et al., 2023). Thus, people are more inclined to protect themselves when they believe that they can execute the necessary actions.

Next, the response efficacy denotes the individual's belief that their action will be effective against the threat (Rogers, 1983). This is in contrast with self-efficacy, which deals with personal capability, as response efficacy deals with the perceived effectiveness of the behaviour. Overall, like self-efficacy, response efficacy also surfaces as an important predictor of protective behaviour across the aforementioned domains of PMT. A meta-analysis of behaviours regarding various health risks, such as stopping smoking and the intake of vaccinations, identified response efficacy as a significant positive factor (Floyd et al., 2000). Furthermore, in cybersecurity, employees who believed that stronger passwords prevented security breaches were more likely to use the provided security measures (Johnston & Warkentin, 2010). In environmental behaviour, people were more inclined to implement safety measures when they had received instructions for protective measures (Bubeck et al., 2018), denoting the importance of response efficacy once again.

Lastly, the response costs are the perceived costs that come with implementing a protective behaviour (Rogers, 1983). The role of this element is also crucial within the coping appraisal of the PMT, as higher perceived costs consistently lower the motivation to adopt protective behaviours in health behaviour (Hinssen & Dohle, 2023; Maleki et al., 2022; Morowatisharifabad et al., 2018). Overall, the coping appraisal of the PMT proves to be a constant predictor of adopting protective behaviour.

PMT and guardianship

Traditionally, the PMT has predominantly been focused on explaining how we are motivated to protect ourselves from threats (Floyd et al., 2000). However, recent research has been exploring the influence of the PMT on protecting others. For example, Bashirian et al. (2020) researched how the threat and coping appraisal of the PMT led to healthcare workers using preventive measures against the spread of COVID-19. The question is whether these findings can also be translated to protecting others in crime situations, such as guardianship. Clubb and Hinkle (2015) already hinted in their theoretical framework proposal for understanding the use of protective measures against criminal victimisation threats towards the usefulness of the PMT, though they noticed the gap in adequate testing for their proposal.

Within guardianship, most empirical studies have primarily focused on property crimes such as burglary (Hollis et al., 2013; Van Sintemaartensdijk et al., 2022), which indeed suggests that the presence of capable guardians can significantly deter crime. Yet, most research has focused on the availability of capable guardians, such as the presence of household residents, rather than the personal variables influencing guardianship behaviour (Barnum et al., 2024). The foregoing suggests that PMT may offer a useful framework for understanding guardianship, as it offers similar cognitive processes, yet empirical research for this is scarce. In particular, self-efficacy and response efficacy may play a crucial role in an individual’s choice to intervene in a crime situation. Especially since within informal

guardianship, there is no obligation to intervene, therefore, an individual's belief in their capability and the outcome of the situation can impact the likelihood of intervening.

Current study

This study uses vignettes as the manner of presentation on the situational context aids in achieving a close likeness to the reality of everyday life (Eifler & Petzold, 2022). Furthermore, they offer a structured yet flexible approach to simulate crime scenarios whilst attaining the usefulness of manipulating variables, which has been proven effective in previous studies questioning intervention behaviour (Reynolds et al., 2023). Response efficacy and self-efficacy are used as predictor variables due to their relevance in predicting protective and intervention behaviours (Desmet et al., 2012; Floyd et al., 2020). By utilising these efficacies within the vignettes in four different conditions – self-efficacy, response efficacy, both, and control – an empirical test is created on how they influence willingness to intervene.

The aim of the current study is to investigate how the two efficacy components of the PMT influence an individual's willingness to intervene in crime situations. As previously discussed, both constructs have been identified as important predictors of self-protective behaviours across different domains, and recent research suggests that these efficacies also influence protecting others; it is expected that this will also expand to the concept of guardianship. Therefore, the following hypothesis is formulated:

> *H1*: Participants in the response efficacy, self-efficacy, or both efficacy conditions report a higher willingness to intervene compared to those in the control condition.

Methods

Design

The current study used a quantitative, mixed design to examine how response efficacy and self-efficacy influence the willingness to intervene in the context of guardianship in crime situations. The independent variable was the condition of the vignette that was used. There were four conditions: control, self-efficacy, response-efficacy, and a combination of both efficacies. All participants saw all six different vignettes: a burglary, online anti-social behaviour, public anti-social behaviour, a bar fight, bar sexual harassment, and a street fight. The versions they saw were randomised each time. The dependent variable, willingness to intervene, was measured ordinally with the following four answer options: "*Do nothing", "Monitor the situation", "Call the police",* and *"Intervene myself"*.

Participants

A total of 125 participants were recruited to take part in this study. The minimum sample size was determined to be 99 participants through a G* power analysis, performed using an ANOVA repeated measures, within-measures F test. The sample was recruited by convenience sampling through the use of the university's research pool (SONA), for which the participants received 0.5 credits, by word of mouth, and through social media channels of the researcher. Participants had to be at least 18 years of age and needed to be at least semi-fluent in English to understand and complete the survey. Before the study, ethical approval was given by the Ethics Committee of the Faculty of Behavioural and Management and Social Sciences of the University of Twente (reference number: 250468).

The final sample consisted of 101 participants (M_{age} = 24.86, SD = 8.19) after deleting 20 participants who had missing items, three participants who did not comply with all informed consent questions, and one participant who claimed to have a very low

understanding of English. Out of this sample, 59 participants were female and 42 were male. Furthermore, 46 participants were Dutch, 28 were German, and 27 belonged to another nationality. Table 1 displays the number of participants who have been in guardianship and victimisation scenarios before; nine participants even had experience being a formal guardian. Forty-six participants were currently completing or had as their highest education a Bachelor's study, 22 a Master's study, 20 high school, 11 University of Applied Sciences, one Trade school, and one PhD. Lastly, 60 participants claimed to have a very high understanding of the English language, 32 a high understanding, and 9 a moderate understanding.

Table 1

Frequency of participants with experience in guardianship and victimisation by vignette

	Burglary	Online	Public	Barfight	Bar SH	Street
Guardianship	21	55	60	47	47	18
Victimisation	7	9	11	11	32	6

Note. Online and Public refer to the anti-social behaviour scenarios. Bar SH refers to bar sexual harassment. Street refers to street attack.

Materials

Scenarios

There were six different scenarios, consisting of a burglary, online anti-social behaviour, public anti-social behaviour, a bar fight, sexual harassment in a bar, and lastly, a street attack. These scenarios were selected due to their variety of crime, adding to the ecological validity of the present research, as they involve different levels of threat and risk. All scenarios had four different conditions: the control condition, a self-efficacy condition, a

response efficacy condition, and a condition combining both efficacies. The efficacies were primed by means of adding statements to the vignettes, intending to increase the self-efficacy and/or response efficacy of the participant.

Burglary. The following vignette comprises the control condition of the burglary scenario. “Walking down the street, you notice a man standing by the back door of a house. He looks around cautiously before pulling something out of his pocket and attempting to unlock the door. The house is quiet, with no lights on. The man doesn’t seem aware of your presence as he works on the lock.” In the self-efficacy situation, the following statement was added: “You know you are capable of shouting at him.” In the response efficacy situation, the following was added: “You know that if you intervene, he will stop the burglary.” Lastly, in the combined condition, the statement was: “You know that you are capable of shouting at him, and if you do so, he will certainly stop the burglary.”

Online anti-social behaviour. For this scenario, the following story was created: “Scrolling through a discussion forum, you come across a post filled with insults and threats towards one specific person. The words are harsh, designed to humiliate and intimidate. The message sits there, unchanged, waiting to be noticed.” Self-efficacy was primed by adding: “You know that you can report the insults and threats.” Next, for the response efficacy, the statement “You know that if you intervene, the original poster will be blocked and the insults and threats.” Was added. Finally, “You know that you can report the insults and threats, and that if you do so, the original poster and the insults and threats will be blocked.” was used for the combined condition.

Public anti-social behaviour. The following vignette was used in this situation: “Walking through the park in the late afternoon, you see a group of teenage boys kicking over rubbish bins. They smash a glass panel on a nearby bus stop, laughing as the pieces scatter across the pavement. The noise echoes in the quiet park, disturbing the otherwise peaceful

atmosphere. They continue, completely unaware of anyone else around." In the self-efficacy situation, the following statement was added: "You know that you can confront the teenagers." For the response-efficacy condition, the statement "You know that intervening will stop the teenagers and prevent the situation from getting worse." Was added. The combination led to the next statement: "You know that you can confront the teenagers and that if you do so, you will stop the teenagers and prevent the situation from getting worse."

Bar fight. For this scenario, the consecutive vignette was created: "While you are standing at a bar, two men start shoving each other, their voices rising above the music. One of them throws a punch, and a nearby table crashes to the floor. The sound of their fighting echoes around the room." Self-efficacy was primed by adding: "You know you can physically separate the men." Then, response efficacy was primed by adding: "You know that if you intervene, this would prevent the situation from escalating further and protect those involved from harm." Lastly, the combined statement was: "You know you can physically separate the men and that if you do so, you prevent the situation from escalating further and protect those involved from harm."

Bar sexual harassment. In this crime scenario, participants read the situation: "At the bar, a man leans too close to a woman, his hand brushing her arm as she tries to pull away. He laughs, blocking her path and getting too close for comfort. She shifts uncomfortably, but he doesn't seem to notice. The interaction looks invasive and unwelcome." To prime the self-efficacy, the next statement was used: "You know that you can confront the man." For the response efficacy situation: "You know that if you intervene, the man will stop harassing the woman and will leave." Was added. Combining them led to: "You know you can confront the man, and that if you do so, the man will stop harassing the woman and will leave."

Street attack. Lastly, the next vignette was created: "Walking home at night, you hear a struggle nearby. A man grips another by the collar, shoving him against a wall. The victim

tries to push back, but the attacker holds firm. The struggle continues, and the scene grows more intense." In the self-efficacy situation, this statement was added: "You know you can pull the attacker off the victim." Furthermore, the next statement was used in the response-efficacy situation: "You know that if you intervene, the attacker is stopped before anyone is seriously hurt." Finally, both efficacies were combined into the following: "You know you can pull the attacker off the victim, and stop the attacker before anyone is seriously hurt."

Questionnaires

The means and standard deviations of the following questionnaires can be found below in Table 3.

Willingness to intervene. After reading the crime vignette, the question "*What would your response to this situation be?"* was asked. The participants had four different response options through which their willingness to intervene was measured. These were: "*Do nothing", "Monitor the situation", "Call the police",* and *"Intervene myself"*. The question and corresponding response options were taken from Reynald (2008).

Protection Motivation Theory. Furthermore, a questionnaire comprised of eight items followed to try and measure the if the PMT variables were correctly manipulated within the study ($\alpha = .44$). It involved the questions *"How likely is it there will be negative consequences for you in this situation?"* and *"How big do you think the chance is that things will end badly for you in this situation?"* to test the perceived probability/vulnerability ($r = .81$). *"How serious are the possible consequences for you if you are in this situation?"* and *"How severe are the potential negative consequences if the situation ends badly for you?"* to test the perceived severity ($r = .73$). *"How responsible would you feel in this situation?"* for the perceived responsibility. *"How effective do you think intervening would be?"* for the response efficacy. *"How capable would you feel in this situation?"* for self-efficacy. And

lastly, *"How much do you think others would approve of your actions in this situation?"* to test the social approval level. The first four questions were taken from van Gelder et al. (2019), and the last four were created for the purpose of this study. The answer possibilities were given on a five-point Likert scale.

Perceived realism. This questionnaire was created by Van Gelder et al. (2019) and was implemented here to measure the extent to which the participants thought the vignettes they read were realistic. It included six items. An example question is: *"I had the idea the scenarios were fictional."* Again, a five-point Likert scale was used, ranging from *1-Strongly disagree* to *5-Strongly agree*, $\alpha = .79$.

Trait fear of crime. This questionnaire was used to measure the participants' general feelings regarding their safety, not just about the scenarios they had read about. The questions, eight in total, were created by Pauwels & Pleysier (2005). An example question is: *"Do you sometimes avoid certain areas in your neighbourhood because you do not consider them safe?"* A five-point Likert scale was implemented with the following range: *1-Never to 5-Always*, $\alpha = 0.92$.

Guardianship experience. For the current study, a questionnaire was created to explore the influence of prior experience with guardianship on how the participants would respond to the situations. In total, it had sixteen items. "Have you had any formal training regarding intervening with crime situations (for example, military; police; security guard; other)?" was asked to find out about the differences between formal and informal guardianship and each situation had its own specific question, namely: *"Have you ever witnessed a situation similar to the burglary scenario you've read about?"*. The follow-up question, *"What did you do in this situation?"* was asked in case of a *"Yes"* response to the previous question. Lastly, a question was asked to explore any further experience participants had with intervening in crime situations that were not in the scenarios. This question, *"Have*

you ever witnessed any other crime situation in which you intervened?", led to an open-answer question when answered with "*Yes*". Participants could only reply with "*Yes*" and "*No*" to the first question and had the same four response options as in the crime situations for the follow-up question. The inspiration for the questions was taken from Barnum et al. (2024).

Victimisation experience. This questionnaire follows the same principle as the previous questionnaire about guardianship experience, but it is intended to find out whether the participant has been the victim of any one of the crime scenarios in the past. Therefore, it incorporates eight items. Six were directly related to the used crime scenarios, an example question is: "Have you ever been the victim in a situation similar to the burglary scenario you've read about?". Furthermore, the final two questions were "Have you ever been the victim in any other kind of crime situation?" and the open question "What kind of situation?". The answer choices were: *"Yes"*, *"No'*, and *"I would like to keep this information to myself"*.

HEXACO. A HEXACO questionnaire was implemented in this questionnaire to measure the main dimensions of the personality of the participants; honesty (α = .68), emotionality (α = .82), extraversion (α = .77), agreeableness (α = .70), conscientiousness (α = .76), and openness to experience (α = .77). It is comprised of 60 items. The questionnaire was retrieved from Ashton & Lee (2009). An example question is: *"I would feel afraid if I had to travel in bad weather conditions"*. A five-point Likert scale was used with a range of *1-Strongly disagree* to *5-Strongly agree*, α = .77.

Self-control. To measure the participants' self-control, a thirteen-item questionnaire created by Tangney et al. (2019) was used in this study. An example question is: *"I do certain things that are bad for me, if they are fun."* Once more, a five-point Likert scale was used with a range from *1-Strongly disagree* to *5-Strongly agree*, α = .83.

Demographics. Lastly, the participants were asked questions about their age, gender, education level, nationality, native language, level of English, and finally, how they rated their physical capability on a five-point Likert scale.

Procedure

To start, participants had to sign up for the study in the SONA environment. Subsequently, the participants were directed to the Qualtrics survey. At the beginning of the survey, the participants were provided with a consent form (Appendix A) that informed them about the purpose of the study, their rights, possible consequences, and what would happen to the collected data. Once they had given their consent, the participants could start with the survey.

First, the participants were randomly assigned to one of the four conditions of the burglary scenario, which they had to read. Subsequently, they had to choose in which way they would respond to the situation, being given the four response options. To finish the first situation, they had to fill in the eight questions regarding, amongst others, their perceived self-efficacy and response efficacy. These steps were repeated in the same order for each of the five crime vignettes that followed: the online anti-social behaviour scenario, the public anti-social behaviour scenario, the bar fight scenario, the bar sexual harassment scenario, and lastly, the street attack scenario.

After finishing all scenarios, the participants could start finishing the remaining questionnaires. First, the participants answered the perceived realism questionnaire. Then, they continued with the questionnaire regarding the trait fear of crime. Next, they filled in the questionnaires about their prior experience with either acting as a guardian or being the victim of a crime situation. If they had any experience with other crime situations as either the intervener or the victim, they were asked for a short open question regarding that situation.

Afterwards, they had to answer the extensive 60-item HEXACO questionnaire. The penultimate questionnaire concerned their self-control. Lastly, some demographic questions were asked of the participants.

Finally, the participants were debriefed by thanking them for their participation and informing them about the aim of the study. Also, the independent variables, self-efficacy and response efficacy, and the dependent variable, willingness to intervene, were explained. In the end, the participants were once again reminded about what they could do if they developed any kind of psychological discomfort due to the possibly traumatic questions in the survey. This finalised the participation, which had taken about 25 minutes to complete.

Data Analysis

After collecting data through the Qualtrics environment, the data was further sorted and cleaned in Excel. Then, the data was transferred to R (version 4.2.1; packages: “readxl”, “tidyverse”, “car”, “psych”, “apaTables”, “ordinal”, “emmeans”, “writexl”) where all analyses were done. The data analysis can be divided into four different steps: manipulation checks, preliminary analysis, the main analysis, and additional analyses.

To check whether the manipulation of the experimental conditions had worked as intended, ANOVA analyses were performed for the self-efficacy and response efficacy scores that were reported after each vignette. Before the ANOVA, the normality of the residuals for both efficacies and the homogeneity of the variances was checked to see if proceeding with an ANOVA analysis was acceptable. Normality was checked via histograms, plots, and the Shapiro-Wilk test. Homogeneity was checked with the Levene test.

Subsequently, a preliminary analysis was done to gain insight into different variables that might have influenced the results. A correlation matrix was created for the variables

Willingness to Intervene, Gender, Age, Perceived Realism, Self-control, Physical capability, Guardianship Experience, Victim Experience, and Fear of Crime.

For the main analysis, an ordinal regression was performed using a Cumulative Link Mixed Model (CLMM). This analysis accounts for the multiple vignettes per participant and tests if the implementation of the different conditions affected the Willingness to Intervene, which is an ordinal variable. Afterwards, a post hoc analysis was conducted to determine what the differences are between the four conditions.

Results

A check of the normality and homogeneity assumption of the self-efficacy and response efficacy scores did not show a definitive reason to deviate from performing an ANOVA analysis. The Levene test was utilised to indicate whether the homogeneity of variances assumption was violated, showing a non-significant result for both self-efficacy ($F(3, 601) = .53$, $p = .660$) and response efficacy ($F(3, 601) = .65$, $p = .582$), therefore the assumption was not violated. Regarding the normality assumption, the histogram and plot of both efficacies slightly differed from a normal distribution (Appendix B). Due to the large sample, there was no reason to use a different analysis than ANOVA.

Manipulation checks

Table 2 presents the slight differences between the means and the standard deviations of self-efficacy and response efficacy across the conditions. It is evident that the efficacies were slightly more activated within their own conditions, with the self-efficacy condition showing the highest reported self-efficacy, and within the response efficacy condition, the reported response efficacy is exceeded only by the combined condition. However, the results from the ANOVA analyses indicated that both self-efficacy ($F(3, 601) = .61$, $p = .609$, $\eta^2 = .003$) and response efficacy ($F(3, 601) = .37$, $p = .778$, $\eta^2 = .002$) do not differ significantly when being individually tested against the two other conditions.

Table 2

Descriptives of self-efficacy and response efficacy per condition across all vignettes

	Self-efficacy		Response efficacy		
	M	*SD*	*M*	*SD*	N
Control	2.78	1.21	3	1.30	144
SE	2.90	1.19	2.91	1.23	147
RE	2.71	1.19	3.04	1.23	164
Both	2.81	1.27	3.05	1.21	150

Note. M, *SD*, and N are used to represent mean, standard deviation, and number, respectively.

Preliminary analysis

Pearson correlations were produced to consider potential relationships between the dependent variable, Willingness to Intervene, and various participant characteristics. Table 3 presents two correlations with the dependent variable that stand out, namely, Gender with Willingness to Intervene and Perceived Realism with Willingness to Intervene. Gender and Willingness to Intervene have a low negative correlation, indicating that females were more inclined to intervene than males. Perceived Realism and Willingness to Intervene have a low positive correlation, suggesting that the higher a participant perceived the scenario to be, the likelier they were to intervene. The other variables did not show a significant relationship with Willingness to Intervene. Noteworthy, Table 3 reveals that on average, participants perceived the scenarios as very realistic.

Table 3

Means, standard deviations, and correlations

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Willingness to Intervene	2.86	0.40								
2. Age	24.86	8.19	-.04							
3. Gender	0.42	0.50	-.21*	.19						
4. Perceived Realism	4.09	0.55	.22*	-.32**	-0.2					
5. Fear of Crime	2.44	1.00	.14	-.32**	-.53**	.12				
6. Self-Control	3.10	0.25	.17	-.07	-.17	.10	.22*			
7. Physical Capability	3.44	0.90	.06	.05	.24*	0.05	-.33**	-.07		
8. Guardianship Experience	2.46	1.44	.01	-.07	.19	.19	-.24*	-.09	.05	
9. Victim Experience	0.75	0.88	.10	-.16	-.01	.17	.14	.01	-.06	.40**

Note. M and *SD* are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Moreover, other significant correlations were identified between the predictors. Perceived Realism had a significant negative relationship with Age, indicating that older participants perceived the vignettes as less realistic. Additionally, Fear of Crime is significantly lower for men as well as, unsurprisingly, participants with a higher reported physical capability. Lastly, individuals who had more experience with guardianship also demonstrated significantly more experience with victimisation.

Main analysis

To test the hypothesis, a cumulative link mixed model (CLMM) was conducted to test the effect of the different vignette conditions on the Willingness to Intervene. This analysis revealed (Table 4) that for the participants in the self-efficacy condition, their willingness to intervene had 1.55 times greater odds of being in a higher intervention category compared to the control condition. An even stronger significant effect was found for the condition with both self-efficacy and response efficacy, with 1.73 times greater odds of selecting a more active intervention option. The response efficacy condition did not show a significant effect compared to the control condition. Moreover, a post hoc pairwise comparison revealed only a significant, increasing effect for the combined efficacy condition compared to the control condition, $z = 2.59$, $p < .05$.

Overall, these findings do not support *H1*: “Participants in the response efficacy, self-efficacy, or both efficacy conditions report a higher willingness to intervene compared to those in the control condition.” Although the participants did show a significantly higher probability to intervene in the self-efficacy and the combined conditions, the effect of the response efficacy was not found to be significant. Therefore, the hypothesis that all conditions would lead to an improvement in willingness to intervene can not be accepted.

Table 4

Results of CLMM on Willingness to Intervene across conditions

Predictor	Estimate (β)	OR	SE	z	p
Condition: SE	0.44	1.55	0.21	2.08	.038*
Condition: RE	0.38	1.47	0.21	1.85	.064
Condition: Both	0.55	1.73	0.21	2.59	.009**

Note. OR, SE, z, and p stand for the odds ratio, standard error, z-value, and p-value, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Additional analyses

To further explore the different facets underlying the relationship between the two efficacies and willingness to intervene, additional analyses were performed. First, as the preliminary analysis revealed the significant relationships between willingness to intervene with gender and willingness to intervene with perceived realism, these variables will be added to the CLMM. Moreover, all six vignettes will be individually analysed with a cumulative link model (CLM) to examine possible differences across the different crime scenarios.

For the extended CLMM, the predictor variable Perceived Realism proved to have a positive, significant effect (β = 0.45, OR = 1.34, $z = 2.22$, $p = .026$), which indicates that the participants were more willing to intervene if they perceived the vignettes to be more realistic. Gender did not show a significant effect (β = -0.26, OR = 1.30, $z = -1.72$, $p = .086$). The efficacies within the extended model did not see a large change in effect compared to the initial model, as the self-efficacy (β = 0.45, OR = 1.57, $z = 2.12$, $p < .05$) and both conditions (β = 0.56, OR =1.76, $z = 2.65$, $p < .01$) remained significant and the response-efficacy

condition (β = 0.39, OR = 1.48, z = 1.89, p = .059) remained insignificant. Additionally, the odds ratios also did not show any noteworthy change.

Proceeding, the six vignettes were analysed individually (Appendix C). Within the burglary, public anti-social behaviour, bar sexual harassment, and the street attack scenario, no significant effects were found across all conditions. However, in the online anti-social behaviour and the bar fight scenario, being in an efficacy condition did influence the outcome of the willingness to intervene. For the online anti-social behaviour, the self-efficacy (β = 1.22, OR = 3.39, z = 2.12, p < .05) and both conditions (β = 1.30, OR = 1.30, z = 3.66, p < .05) strongly increased the likelihood of choosing a more active intervention option. In the bar fight scenario, participants in the self-efficacy (β = 1.19, OR = 1.30, z = 2.32, p < .05), response efficacy (β = 1.28, OR = 1.30, z = 2.30, p = < .05), and both conditions (β = 1.71, OR = 1.30, z = 3.20, p < .01) had significantly higher willingness to intervene than those in the control condition.

Discussion

The current study aimed to explore whether self-efficacy and response efficacy, as components of the PMT, influence individuals' willingness to intervene in crime situations. It was hypothesised that participants in all three manipulation groups would exhibit a higher willingness to intervene compared to the control condition. However, the results only partially supported the hypothesis, which therefore could not be accepted. Only the self-efficacy and both efficacy conditions proved to significantly increase the likelihood of intervening, whereas for response efficacy, no significant effect was observed compared to the control condition. Furthermore, additional analyses revealed the perceived realism of the vignettes, which was examined to be high, as a significant positive predictor of willingness to intervene, suggesting that participants were more likely to intervene in scenarios they perceived to be realistic. This result was not identified for the effect of gender, even though a significant correlation was found in the preliminary analysis. Lastly, regarding each crime vignette individually, only online anti-social behaviour and the bar fight indicated significant changes in willingness to intervene across the conditions compared to the control group. The other four vignettes did not yield significant effects.

Self-efficacy and guardianship

The findings suggest that self-efficacy plays an important role in shaping how willing individuals are to intervene in crime situations. When participants were presented with scenarios that emphasised their own ability to act, either alone or together with response efficacy, they were more likely to report that they would choose a more active form of intervention. This outcome is consistent with the core ideas of PMT (Rogers, 1983), which describes self-efficacy as a person's confidence in their ability to carry out a specific behaviour. While PMT has mainly been used to explain behaviour directed at one's own safety, such as adopting healthier habits or improving cybersecurity practices, more recent

research indicates that it may also be applicable in situations where people act to safeguard others. For instance, Bashirian et al. (2020) found that coping appraisal elements of PMT helped explain why healthcare workers adopted measures to prevent the spread of COVID-19, not only for themselves but also to protect patients.

The current findings extend the line of reasoning that the PMT is applicable to safeguarding others by demonstrating that self-efficacy also plays a significant role in guardianship behaviour. People being more likely to intervene when they believe that they have the capacity to behave adequately is supported by earlier research from Desmet et al. (2012) and Van Cleemput et al. (2014), who both identified self-efficacy as a key determinant of whether people defend others during cyberbullying. More recent work by Bussey et al. (2019) confirms this; they found that adolescents with high defending self-efficacy were more likely to engage in constructive bystander behaviour online. Similarly, in a simulation of sexual aggression, Parrott et al. (2019) showed that even alcohol-intoxicated participants were more likely to step in when they had higher self-efficacy. These studies, along with the findings of the current study, indicate that believing in one's ability to act is not just helpful; it may be essential.

The above finding is also in line with existing research on guardianship behaviour. As previously discussed, Barnum et al. (2024) found that while many individuals can identify criminal or inappropriate situations, this awareness does not always translate into action. Their study highlighted that characteristics like previous experience and perceived physical ability, factors closely linked to self-efficacy, were associated with a greater tendency to intervene. That relationship mirrors the current results, where the priming of self-efficacy in vignettes encouraged participants to picture themselves as capable, increasing their willingness to intervene. In other words, it is not just the recognition of inappropriate behaviour that matters, but also the belief that one can do something about it.

The absence of response efficacy effects

Although response efficacy is also a core component of PMT (Rogers, 1983), the current study did not find a significant effect of response efficacy on the overall willingness to intervene. This contrasts with the hypothesis and previous studies in the health domain where response efficacy has emerged as a robust predictor of protective behaviour (Floyd et al., 2000; Bubeck et al., 2012). One reason for the lack of effect could be that the response efficacy statements did not come across as believable or strong enough to change what participants thought. Even though the scenarios were mostly seen as realistic, some participants may not have believed that just one action, like stepping in or confronting someone, would actually stop the situation. This seems especially true for more serious cases like burglary or assault. Such doubts have also been found in earlier guardianship research, where people were often unsure whether intervening in sexual violence would really change the outcome, especially when the situation was unclear or getting worse (Bennett et al., 2013).

Another possible explanation is that response efficacy on its own might not be enough to encourage action if people do not also believe in their own ability to intervene. The Extended Parallel Process Model supports that idea, suggesting that response efficacy has little impact when self-efficacy is missing (Witte & Allen, 2000). This phenomenon lines up with what was found in the current study, where combining both types of efficacy had a stronger impact than using response efficacy on its own. The foregoing also seems reasonable when considering how people think about crime situations. Unlike health or cybersecurity, where actions often seem more straightforward or safe, people might see interventions in crime as more uncertain or risky (Johnston & Warkentin, 2010; Rogers, 1983). In contrast, crime scenarios are inherently unpredictable, and participants may have prioritised their own capacity to act over beliefs about whether that action would be effective. This would indicate

that, in guardianship, self-efficacy is a more fundamental driver of intervention than response efficacy, which the findings support.

Within bystander intervention programs, especially those focused on informal guardians, these findings could prove to be very relevant by tailoring the approach towards more self-efficacy. The approach could be done by using highly realistic scenarios repeatedly, as they have been found to increase the likelihood of intervening (Banyard et al., 2007). One of those programs is GreenDot, which has been shown to increase bystander behaviour across student populations (Coker et al., 2011, 2015). GreenDot successfully uses motivational speeches and skill-building training as its approach, further highlighting the importance of self-efficacy in bystander intervention programs. To increase the success of these programs, virtual reality can be used as it offers a promising tool since prior research has shown that VR better mimics real-life scenarios and the increased perceived realism influences the willingness to act (van Sintemaartensdijk et al, 2020, 2022).

Focusing on informal guardians is especially important since those are the ones who happen to find themselves in crime situations. Increasing their self-efficacy could lead to benefits within communities, as it might raise collective awareness. More confidence within the community can further lead to increased informal social control, potentially deterring crime (Barnum et al., 2024). Overall, increased tailoring towards self-efficacy in bystander intervention programmes for informal guardians can provide prospective results.

Perceived realism and scenario-specific findings

The additional exploratory analysis identified perceived realism as a significant predictor for willingness to intervene, as higher ratings of perceived realism lead to an increased chance of choosing a more active intervention option. More immersive scenarios, thus more realistic, proved to elicit stronger cognitive and emotional responses in a study

using a 360-degree video, performed by Herman et al. (2014). Yet, other research contradicts this by indicating that written and visual vignettes almost had the same self-reported feelings of unsafety (Eifler & Petzold, 2024). However, Eifler and Petzold's study used photos, which are significantly less immersive than a 360-degree video.

In addition to realism, the individual analyses of each vignette revealed some variability in the effect of the efficacy beliefs. Significant effects were only found in the online anti-social behaviour and bar fight scenarios, whereas the remaining four scenarios did not yield significant differences between the conditions. An interpretation could be that the former scenarios were clearer or perceived as more controllable, with less risk. In contrast, scenarios that inherently possess more risk, such as the burglary and street attack situation, might have been perceived as more dangerous and therefore exhibiting a lower willingness to intervene regardless of efficacy beliefs. This aligns with previous findings displaying the critical role of scenario-specific factors in bystander intervention (Bennett et al., 2013; Palmer et al., 2016).

Strengths and limitations

First of all, the current study included six different crime scenarios, which captured a wide range of guardianship contexts, increasing the generalisability towards different crime types and situations. Next, the approach of combining PMT with guardianship has allowed for deeper insight into the cognitive mechanisms that influence bystander behaviour, attempting to shrink the gap between psychological and criminological frameworks. Furthermore, the setup of this study with its randomisation of the vignettes and the within-subject design to expose all participants to all six scenarios increased the internal validity of the research.

Regarding the limitations, it needs to be mentioned that this study did not take the response costs of PMT into account. Meaning, one-third of the coping appraisal was omitted,

which could potentially have limited the explanatory power of PMT. However, excluding the response costs was a deliberate choice due to the focus on efficacy beliefs, which often strongly predict behaviour. Since six different vignettes were used, response costs could also have been too different across the scenarios.

In addition, during the data collection process, some participants remarked that the questionnaire about the PMT created some confusion. It was unclear whether the questions needed to be answered from an intervening point of view or from the actual chosen behaviour point of view. Nevertheless, the high perceived realism scores of the vignettes indicate that overall, the participants engaged meaningfully with the scenarios.

Lastly, the manipulation of self-efficacy and response efficacy did not lead to a higher reported self-efficacy and response efficacy compared to the control and both conditions, potentially leading to questions regarding the validity of this research. However, Simon et al. (2025) also found that the coping messages did not significantly increase the targeted coping conditions in their study on protective password behaviour, though behavioural effects still occurred without the changes in the efficacies, consistent with the results in the present study.

Future research

In the future, studies might benefit from exploring PMT's usefulness in the understanding of protecting others by implementing virtual reality in its research design. As virtual reality has been effectively used before in guardianship research (Van Sintemaartensdijk et al., 2020, 2022), it could also be utilised to assess the decision-making processes of PMT. Furthermore, this could clarify whether self-efficacy and response efficacy share the same distinction in effectiveness in written vignettes as in a visual mode of presentation, which identifies whether the realism of the setup moderates the effect of PMT components.

Additionally, this research opted not to include the response costs of PMT, future research could incorporate this part of the coping appraisal to explore whether the perceived negative consequences influence the willingness to intervene across various levels of the threat appraisal and the efficacies.

Lastly, the data were collected at one point in time, changes over time are not taken into account. Future research could use a longitudinal design to assess if the priming of self-efficacy and response efficacy remains effective over time or if it diminishes. Besides that, it could clarify the behaviour versus intention issue at hand. The current research only measured intention due to its design restrictions, longitudinal research could check whether participants actually intervened later in time.

Conclusion

This study represents one of the first investigations into how Protection Motivation Theory's coping appraisal, specifically self-efficacy and response efficacy, shapes informal guardianship in the context of crime intervention. The findings illustrate that self-efficacy on its own, and combined with response efficacy, has a significant positive effect on the likelihood of intervening in crime situations. Response efficacy, however, did not display any significant effect alone, suggesting that the belief in one's capability is more important than the belief in the action's effectiveness within guardianship. These findings extend PMT from a self-protective framework towards one that incorporates the protecting of others, which can be of use in practical applications such as intervention training. To conclude, this study increases the comprehension of the psychological mechanisms behind the willingness to intervene in crime situations, and it provides strong evidence that self-efficacy is vital in understanding intervention behaviour.

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Appendices

A: Consent form

Informed consent form

Information sheet

You are being invited to participate in a research study titled "Understanding the influence of the PMT coping appraisal on guardianship; a vignette study." This study is being done by **Ruud Weda and Dr. Iris van Sintemaartensdijk** from the Faculty of Behavioural, Management and Social Sciences at the University of Twente.

The purpose of this research study is to contribute to a deeper understanding of the psychological mechanisms driving crime prevention actions. Therefore, we are interested in your reactions to various crime situations. After every crime vignette, which is a little story, we ask you to fill in how you would respond to this situation. Furthermore, we ask you to fill out some other relevant questionnaires. This study will take you approximately **40-45** minutes to complete. The data will be used for a bachelor's thesis.

Your participation in this study is entirely voluntary and you can withdraw at any time. You are free to omit any question.

It is possible that the crime vignettes can raise certain issues for participants who have any kind of experience with these scenarios. In this case, participants can contact the researchers and are offered support if needed.

We believe there are no known further risks associated with this research study; however, as with any online related activity the risk of a breach is always possible. To the best of our ability your answers in this study will remain confidential. We will minimize any risks by not sharing any personal information beyond the study team and it will be removed soon after finishing the data collection. The test results will only be used for research purposes regulated by the University of Twente. Furthermore, this research project has been reviewed and approved by the BMS Ethics Committee/domain Humanities & Social Sciences.

Study contact details for further information:

Ruud Weda, **r.h.weda@student.utwente.nl**

Dr. Iris van Sintemaartensdijk, **i.vansintemaartensdijk@utwente.nl**

Consent Form for "Understanding the influence of the PMT coping appraisal on guardianship; a vignette study"

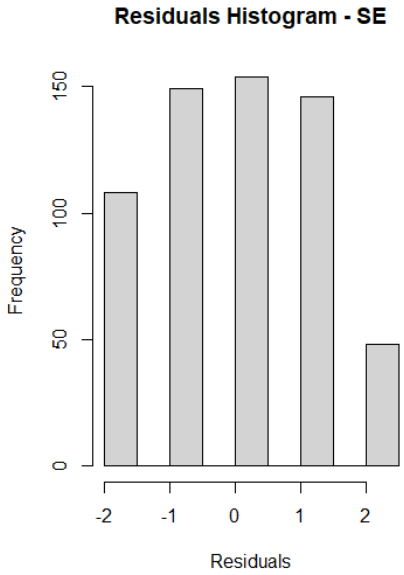
Please tick the appropriate boxes	Yes	No
Taking part in the study		
I have read and understood the study information, or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	○	○
I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.	○	○
I understand that taking part in the study involves reading crime vignettes and completing questionnaires regarding these.	○	○
Risks associated with participating in the study		
I understand that taking part in the study involves the following risks: possible mental discomfort from re-experiencing crime scenarios.	○	○
Use of the information in the study		
I understand that information I provide will be used for a bachelor's thesis.	○	○
I understand that personal information collected about me that can identify me, such as [e.g. my name or where I live], will not be shared beyond the study team.	○	○
Future use and reuse of the information by others		
I give permission for the test results that I provide to be archived in Qualtrics databases so it can be used for future research and learning.	○	○

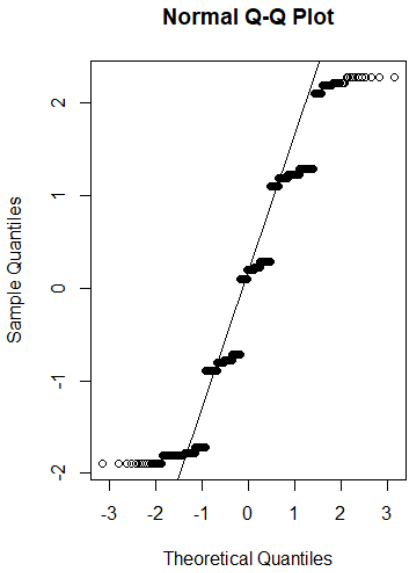
Contact Information for Questions about Your Rights as a Research Participant

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee/domain Humanities & Social Sciences of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-hss@utwente.nl

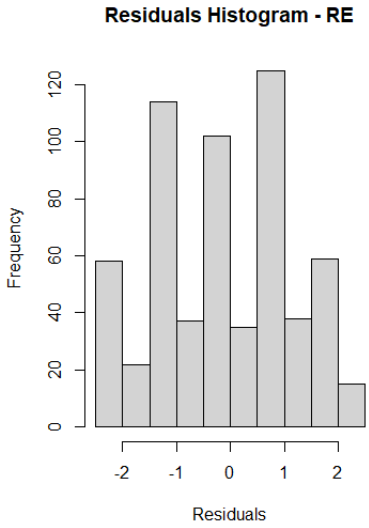
B: Normality assumption

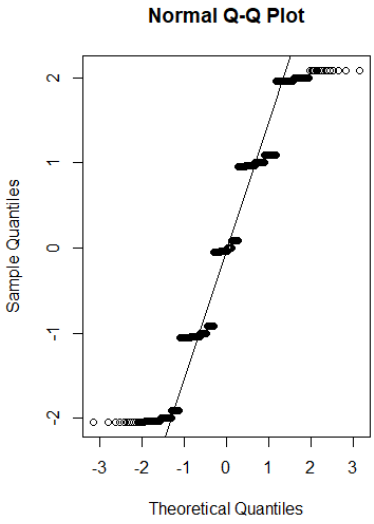
Self-efficacy





Response efficacy





C: Individual vignette analyses

Burglary:

Predictor	Estimate (β)	OR	SE	z	p
Condition: SE	-0.24	0.79	0.73	-0.33	0.740
Condition: RE	0.20	1.22	0.65	0.31	0.754
Condition: Both	0.37	1.44	0.68	0.54	0.589

Online anti-social behaviour:

Predictor	Estimate (β)	OR	SE	z	p
Condition: SE	1.22	3.39	0.58	2.12	0.034*
Condition: RE	0.71	2.03	0.53	1.32	0.186
Condition: Both	1.30	3.66	0.60	2.18	0.029*

Public anti-social behaviour:

Predictor	Estimate (β)	OR	SE	z	P
Condition: SE	0.25	1.28	0.55	0.45	0.654
Condition: RE	0.14	1.15	0.53	0.26	0.792
Condition: Both	0.21	1.23	0.56	0.37	0.709

Barfight:

Predictor	Estimate (β)	OR	SE	z	p
Condition: SE	1.19	3.29	0.51	2.31	0.021*
Condition: RE	1.28	3.58	0.55	2.30	0.021*
Condition: Both	1.71	5.52	0.53	3.20	0.001**

Bar sexual harassment:

Predictor	Estimate (β)	OR	SE	z	p
Condition: SE	0.08	1.08	0.61	0.13	0.898
Condition: RE	-0.06	0.94	0.59	-0.10	0.923
Condition: Both	0.25	1.28	0.66	0.37	0.708

Street fight:

Predictor	Estimate (β)	OR	SE	z	p
Condition: SE	0.34	1.41	0.56	0.60	0.545
Condition: RE	1.01	2.75	0.57	1.76	0.078
Condition: Both	0.59	1.80	0.55	1.06	0.589

Appendix D: AI Statement

During the preparation of this work, I used ChatGPT to assist with R coding, language assistance, and the creation of the vignettes. After using this tool, I thoroughly reviewed and edited the content as needed, taking full responsibility for the final outcome.