

The unresponsive bystander: Are bystanders more responsive in dangerous emergencies?

PETER FISCHER*, TOBIAS GREITEMEYER,
FABIAN POLLOZEK AND DIETER FREY
Ludwig-Maximilians-University, Munich, Germany

Abstract

Previous research in bystander intervention found that the presence of other bystanders reduces helping behaviour in an emergency (bystander effect). This research was mainly conducted in the context of non-dangerous, non-violent emergencies. We hypothesize that the classic bystander effect does not occur in more dangerous situations because: a) they are faster and more clearly recognized as emergency situations; and b) higher costs for refusing help increase the accepted costs for helping. Following this line of reasoning, the present research tests whether the bystander effect is affected by the degree of the emergency's potential danger. Results supported our expectations: In situations with low potential danger, more help was given in the solitary condition than in the bystander condition. However, in situations with high potential danger, participants confronted with an emergency alone or in the presence of another bystander were similarly likely to help the victim. Copyright © 2005 John Wiley & Sons, Ltd.

Much publicity has been given in recent years to those incidents in which crimes are committed while bystanders do nothing to help the victim—such as the widely decried unresponsiveness of 38 witnesses during the violent murder of Kitty Genovese. However, there are also examples to prove the opposite, such as the incident that happened in Munich, Zennetti-Street, 13 January 2001, 1 a.m.: Some Nazi skinheads chased a young Greek and beat him up in a most brutal way. Several people witnessed this situation and one of them—a young man from Turkey—decided to help. Risking his own life, he was able to save the blood-stained victim's life. With regard to these examples, the following question arises: What is the difference between emergencies in which bystanders do help and those in which bystanders do not help? In our opinion, the subjectively perceived danger of the emergency plays an important role in this context. However, the role of emergency-related danger for bystander intervention has not been fully investigated thus far. Accordingly, in the current study we

*Correspondence to: Dr Peter Fischer, Department of Psychology, Ludwig-Maximilians-University, Leopoldstrasse 13, 80802 Munich, Germany. E-mail: pfischer@psy.uni-muenchen.de

Contract/grant sponsor: German Scientific Foundation (Deutsche Forschungsgemeinschaft [DFG]); contract/grant number: FI 938/2-1.

mainly investigate whether different degrees of emergency-related danger differently affect helping responses of bystanders, who are either alone or in the company of another passive bystander. In order to further clarify underlying psychological processes, we try to investigate associations between emergency-related danger, bystander presence, emergency awareness, and accepted costs of intervention.

RESEARCH ON BYSTANDER INTERVENTION

Research on bystander intervention (Latané & Darley, 1970) provided strong support for the general proposition that the presence of other people serves to inhibit the impulse to help. Furthermore, the mere perception that other people are also witnessing the event will markedly decrease the likelihood that an individual will intervene in an emergency (Darley & Latané, 1968; Latané & Rodin, 1969). Latané and Darley (1970) have proposed three different processes that may account for the frequently observed tendency of bystanders to inhibit each other's responsiveness in emergencies: a) social influence; b) evaluation apprehension; and c) diffusion of responsibility. Social influence implies that, since an apparent helping situation is likely to be ambiguous, an individual looks to other people to help define it. The presence of others can thus inhibit helping when individuals see the inaction of others and interpret the situation as less critical than it actually is (see also Prentice & Miller, 1996). Evaluation apprehension requires that focal bystanders believe others are aware of their responses. The presence of others can inhibit helping when individuals are fearful that their behaviour can be seen by others and be evaluated negatively. Finally, diffusion of responsibility can be viewed as a means of reducing the psychological cost associated with non-intervention. When others are present, such costs are shared and non-intervention becomes more likely. The knowledge that others are present and available to respond allows the shifting of some of the responsibility for providing help to them (see also Garcia, Weaver, Moskowitz, & Darley, 2002).

The bystander-effect has been replicated in a variety of experimental situations (cf. Latané & Nida, 1981): For example, when a room with people waiting for an interview became filled with smoke (Latané & Darley, 1968) or the fire alarm started to sound (Ross & Braband, 1973). Furthermore, the bystander effect was observed when other persons suffered a seizure (Schwartz & Clausen, 1970), underwent a severe asthma attack (Harris & Robinson, 1973), received electric shocks (Latané & Darley, 1976) or had an accident with a book shelf (Latané & Darley, 1968). In addition, when others are present or are believed to be so, people are less likely to answer an intercom or the door (Levy et al., 1972), pick up coins and pencils in an elevator (Latané & Dabbs, 1975), report a broken tape recording (Misavage & Richardson, 1974), help with a flat tire (Hurley & Allen, 1974), and pledge less money on charity-measures (Garcia et al., 2002).

All of these studies have found social inhibition effects, that is, bystanders hinder helping behaviour (c.f. Latané & Nida, 1981). Yet little of this research has confronted subjects with an emergency caused by a violent crime with potentially severe and dangerous negative consequences both for the bystander and the victim (e.g. getting insulted or attacked by a perpetrator). The victims' need was commonly brought about by impersonally caused accidents (e.g. falling bookcases, Latané & Rodin, 1969), physical illness (e.g. nervous seizures, Darley & Latané, 1968), or non-violent crimes (e.g. theft of books; Howard & Crano, 1974; theft of cash; Latané & Elman, 1970; theft of a portable radio; Moriarty, 1975; graffiti drawings in an elevator; Chekroun & Brauer, 2002). In most research conducted to date, bystanders have been exposed to violent situations with only little potential danger and few potential negative consequences for bystanders and victims, such as in the form of fighting between children (Latané & Darley, 1970; Levine, 1999) and between participants in a psychodrama (Borofsky, Stollak, & Messé,

1971). Other studies exposed participants to videotaped violence and measured only intentions to help but not actual behaviour (Levine, Cassidy, & Brazier, 2002). In none of these studies were the victims or the bystanders in real danger, such as being hit or insulted by a perpetrator.

BYSTANDER INTERVENTION IN DANGEROUS EMERGENCIES

There are only a few studies investigating the bystander-effect by exposing participants to a dangerous, violent emergency (Harari, Harari, & White, 1985; Schwartz & Gottlieb, 1976) implying high costs for helping (danger for the bystander) but also high costs for not helping (danger for the victim). For example, a study by Schwartz and Gottlieb (1976) was conducted at night in a solitary campus building; while communicating via intercom about an embarrassing sexual topic, participants heard a conversation between the victim and a male stranger that quickly escalated into a fight. The intruder stole the victim's tape recorder, and the victim tried to stop him. Participants heard loud arguing and the crash of a person falling. The intruder had apparently escaped with the victim's recorder, leaving the victim crying on the floor. Participants heard that incident either on their own or in the company of other participants. Results revealed no classic bystander effect: participants were even slightly more likely to respond to the emergency in the bystander condition in which the other participants were aware of their reactions than was the case in the solitary condition. A similar result was found in the study of Harari et al. (1985): In that study, a rape situation was simulated in a naturalistic setting. While men walked to their car alone (alone condition) or in the company of other men (bystander condition) in a parking lot, a male and a female actor simulated a rape assault. The male actor grabbed the woman roughly, put his hand around her waist and over her mouth. Both appeared to be struggling and the woman loudly screamed for help. The male participants could either intervene directly, call a policeman (indirect intervention) or ignore the emergency (no intervention). In the bystander condition, 85% of the male participants intervened, whereas in the alone condition only 65% of the participants intervened. In sum, in both experiments, participants were confronted with dangerous emergencies and more frequently helped in the bystander conditions than in the alone conditions. Hence, violent and dangerous emergencies seem to reduce the bystander effect. However, since none of these studies employed a control group with low potential danger to bystander and victim, we cannot definitely conclude that the perceived danger of the emergency is a crucial moderator for the occurrence of the bystander effect. The present study tries to overcome this flaw of former research on bystander intervention.

Why do dangerous emergencies seemingly reduce the bystander effect? We assume that dangerous emergencies are recognized as real emergencies more clearly and thus increase the costs for not helping the victim. As a consequence, the bystander's empathic arousal increases, which finally leads to more helping—independently of whether the bystander is alone or accompanied by other bystanders. The propositions of 'the arousal: cost-reward model' (Dovidio, Piliavin, Gaertner, Schroeder, & Clark, 1991; Piliavin, 1981; Schroeder, 1995) are in line with this argumentation. This model contains arousal and cost-reward analyses as central concepts for predicting helping behaviour. Specifically, the arousal: cost-reward model proposes that empathic arousal emerges by witnessing the distress of another person, whereas the degree of arousal is directly related to the clarity, severity, and duration of the victim's need. When the bystander attributes his empathic arousal to the victim's distress (which is more probable in the context of dangerous rather than non-dangerous emergencies), this increased arousal becomes increasingly aversive, and as a consequence the bystander is motivated to reduce this aversive arousal. Thereby, a very efficient way to reduce this arousal is helping to relieve the victim's distress. In the context of dangerous emergencies (i.e., when

the costs for not helping are high either to the bystander or the victim) this model would predict a generally increased empathic arousal, and thus—independently of whether the bystander is alone or not—increased helping rates. The present study intends to directly test this hypothesis.

THE PRESENT STUDY

Participants were exposed to an emergency situation with either low or high potential danger to the victim and the bystander. In it, the bystander was either alone or in the presence of one additional passive bystander, a confederate of the experimenter who had been instructed to notice the emergency but to remain indifferent to it. The participants' alleged task was to evaluate a cross-gender communication between a man and a woman. Suddenly, the man starts to verbally attack and grab the woman. The degree of potential emergency-related danger was manipulated by the size of the male actor who was either of small stature (representing low danger) or of large stature (representing high danger). In accordance with the arousal: cost-reward model, we hypothesize that the classic bystander-effect will be replicated in conditions with low but not in those with high danger. The following psychological processes should be associated with increased danger in emergency situations: According to the arousal: cost-reward model, dangerous emergencies should be associated with a clearer and earlier recognition of the emergency, resulting in an increased degree of empathic arousal, increased attribution of personal responsibility, and thus a greater willingness to accept increased costs for helping.

Note that this study is the first one comparing intervention frequency in emergency situations with low and high expected danger for the helper and the potential victim; previous studies did not systematically manipulate this variable within the same experimental design. In addition, the present research helps to further investigate the arousal: cost-reward model by employing mediational analyses in order to determine the psychological processes associated with the predictions of the model concerning the impact of different degrees of danger in emergencies and different number of bystanders on the actual helping response rate.

Method

Participants and Design

Participants were 54 females and 32 males between the ages of 18 and 34 years old ($M = 23.70$, $SD = 3.59$) who received 5 Euro (about \$6.50) for participation. A 2 (*bystander*: yes ν no) $\times$ 2 (*danger*: low ν high) $\times$ 2 (*sex of the bystander*: female ν male) factorial design was employed. All participants were randomly assigned to the experimental conditions. The entire experiment lasted for about 1 h.

Materials and Procedure

A hallway in the university building was the designated meeting point for all participants. The participants learned that their task was to evaluate a cross-gender communication. Written instructions indicated that the study tested the hypothesis that in a first contact situation between men and women, the judgment of the actual sexual interest of the opposite sex is frequently subject to misinterpretation. For instance, a male might misperceive the friendliness of a female as a sign of sexual interest. Each participant was collected by the experimenter and accompanied to the participants' room. To ensure that the participants knew the location of the experimenter's office, the experimenter stopped briefly at his office to get some questionnaires while the participant waited at the door. Then, the target room in

which the cross-gender communication was to take place was shown to the participants to ensure that they knew its location and to make them familiar with the technical equipment involved in the experiment. The target room was equipped with a video camera attached to a tripod stand in front of two opposing chairs and a visible cable connection to the television set in the participants' room. Participants were shown this cable connection and were told that the video camera in the target room transmitted a live broadcast of the social interaction sequence onto the TV set in the participants' room. In actuality, the television set was not connected to the video camera but to a hidden video recorder transmitting the faked social interaction video sequences. Afterwards, participants were led next door to their room, which was equipped with a TV in front of a table and two chairs for them to watch and evaluate the social interaction sequence.

In the participants' room, the participants were given written instructions together with the social interaction questionnaire. Participants learned that they would secretly observe three interactions between three different randomly chosen pairs of subjects who did not know each other. The camera in the target room would transmit the cross-gender interaction live onto the TV-screen in the participants' room. The participants were supposed to observe the three subsequent interactions between the two opposite-sex individuals and to thoroughly evaluate the interaction afterwards. The questionnaire involved 11 items measuring how attracted the individuals were to each other (e.g. 'Do you think they will meet each other again after the experiment?'). These data were not analysed. After having read the instructions, the subject was left alone and the experiment began by randomly showing the videotape either with low or high potentially negative consequences in the third interaction sequence.

Manipulation of the Potential Danger of the Emergency

The experimental stimuli consisted of two pre-recorded videos each showing three interaction sequences between three different males and three different females. The first two interaction sequences were exactly identical on both videotapes showing 5 min of a 'getting acquainted process' between an allegedly randomly chosen male and female. In fact, these two individuals were confederates of the experimenter with instructions to flirt with each other. On the videotape, participants saw the experimenter leading the pair into the target room. After asking the pair to sit down, the experimenter welcomed the two, thanked them for their attendance, and asked them if they knew each other. The pair denied this, and the experimenter told them that they would be left alone for a certain time. During this time period they were given the opportunity of getting acquainted. After having given the instructions, the experimenter left the room, and the interaction was recorded by the camera. The communication was interrupted exactly 5 min later by the experimenter. The pair was thanked for their participation and released. This procedure was identical in the first and the second video sequence.

In the third sequence, professional actors were recruited. The female actor representing the victim in both third sequences was a 21-year-old petite female with a fragile physique. Her counterpart on the video sequence with *high potential danger* was a strong-built, thug-like male. As indicated earlier, the beginning of the sequence was identical to the two previous interactions. The actors were pre-instructed to become acquainted and flirt with each other in a quite natural way during the first two minutes. The male actor was requested to dominate the conversation and to flirt more heavily as time progressed. During the third and fourth minute, the male actor was instructed to increase sexual insinuation up to a level of unambiguous verbal sexual harassment, while the victim was told to focus on the completion of the experiment, but then, due to the increasing persistence of the male actor, to defend herself verbally and reject the perpetrator and his statements. In the fifth minute, the male perpetrator loudly starts insulting the victim and touching her without her permission. The conflict peaks in the victim's attempts to stand up and prepare to leave the room, while the perpetrator tries to

block the exit. While the victim screams: 'Stop touching me! I want to leave! Let me go,' the perpetrator pushes her roughly across the room into the far-end corner. A few seconds later the picture goes black leaving the watching participant with this last impression of the emergency.

The same actress's counterpart on the second video sequence with *low potential danger* was a skinny male of small stature, eliciting much less fear and respect as a direct result of his meager physique compared to the male actor in the former condition. The course of this sequence was completely identical to the sequence with the high potentially negative consequences. Both videos were pilot-tested.¹

Manipulation of the Bystander v No-bystander Condition

In the no bystander condition, the participant was alone in the participants' room watching the three video sequences. In the bystander condition, the participant watched the video sequences in the presence of a bystander who was a confederate of the experimenter. During the third critical sequence, the bystander would watch the incident apathetically and answer the questionnaire subsequently. If the bystander was approached by the participant, s/he would acknowledge the incident with a quick notion, shrug shoulders, and continue to exhibit no signs of upset. If again addressed by the participant, the bystander would only respond that s/he does not want to get involved, her/his job is answering the questionnaire.

Dependent Measures

The experimenter observed from a hidden location and checked whether the participant tried to help the victim. Before the participant could enter the target room, he/she was stopped by the experimenter and assured that everything was under control. In addition, the experimenter measured reaction times of the participants from the end of the third sequence (when the screen went black) until they left the lab in order to help the victim. Of course, this data could only be measured for participants who intervened. Finally, all participants were asked to answer one more questionnaire that contained items measuring social responsibility, accepted costs for intervention, and awareness that an emergency really happened.² Social responsibility was measured with the following items: a) 'I felt personally responsible for helping in that emergency situation'; b) 'The girl was in need and therefore I was responsible to help'; and c) 'I recognized injustice and therefore felt responsible to help the victim'. All items were highly correlated, all $r_s > 0.65$, all $p_s < 0.001$, thus these items were collapsed into a scale of social responsibility ($\alpha = 0.88$). Emergency awareness (empathic arousal, respectively) was measured with the items: a) 'I recognized very quickly that something was going wrong in there'; b) 'I attended to the emergency very quickly'; and c) 'My attention towards the emergency situation was

¹Participants of a pretest ($N = 30$) assessed the potential danger of the situation for the victim ('How dangerous is the situation for the woman?') and the bystander to intervene ('How dangerous is the situation for someone who tries to intervene?') on a scale from 0 (*not at all dangerous*) to 10 (*extremely dangerous*). A 2 (*film sequence*: low danger v high danger) $\times$ 2 (*target person*: danger for bystander v danger for victim)—factorial analysis of variance (ANOVA) with repeated measures on the last factor revealed a significant main effect for 'film sequence', $F(1, 28) = 9.01$, $p < 0.01$, $\eta^2 = 0.24$. Follow-up analyses showed that participants who saw the high danger film sequence reported higher potential danger for the intervening bystander ($M = 8.53$, $SD = 1.85$), $F(1, 28) = 4.80$, $p < 0.04$, $\eta^2 = 0.15$, and the victim ($M = 5.99$, $SD = 2.17$), $F(1, 28) = 5.04$, $p < 0.04$, $\eta^2 = 0.15$, compared to the low danger film sequence (danger for bystander: $M = 6.27$, $SD = 3.56$; danger for victim: $M = 4.20$, $SD = 2.21$). To sum up, the situation in the high danger film sequence was assessed as being more dangerous to the bystander and the victim than the situation presented in the low danger film sequence.

²One could have problems with the questionnaire items of the mediational analysis, since those who help and those who do not are probably going to interpret them very differently. One could see the answers more as a rationalization for what they did rather than an accurate representation of what went on in their minds. However, it was the best we could do without risking the credibility of our experimental design. Asking about these variables right after the danger manipulation and before measuring the dependent variable would have caused suspicion and unmasked our cover story.

Table 1. Helping response, reaction time, emergency awareness, and accepted costs for helping as a function of emergency-related danger and number of bystanders

Experimental Condition	Dependent variables			
	Helping response (in %)	Reaction time (in seconds)	Emergency awareness	Accepted costs
Alone/low danger	50	393 (51)	5.29 (1.24)	5.00 (1.35)
Alone/high danger	44	377 (27)	4.90 (1.19)	4.81 (1.22)
Bystander/low danger	5.9	420 (0)	3.86 (1.46)	3.86 (1.31)
Bystander/high danger	40	338 (60)	5.08 (1.16)	4.89 (1.00)

very high.' Because of the high correlation between these three items, all $r_s > 0.69$, all $p_s < 0.001$, they were collapsed into a scale of emergency awareness ($\alpha = 0.90$). Finally, the accepted costs for helping were measured with the items: a) 'When I saw the violence perpetrated against that woman, I didn't mind the costs of helping' and b) 'Seeing that injustice, I was greatly bothered by the costs of helping.' Both items were highly correlated, $r = 0.79$, $p = 0.001$, and thus were added to a scale of accepted costs for helping ($\alpha = 0.88$). All items were formulated on a scale from 0 (*not at all*) to 10 (*definitely*).

Participants were given the suspicion check asking whether they perceived the three interaction sequences as real and authentic, and if they believed that the observed pair was actually physically present in the target room. Finally, participants were thoroughly debriefed.

RESULTS

Thirty-seven per cent of the participants tried to help the victim. Sex³ and age of the participants and sex of the bystander had no effect on any of the dependent variables nor were there any significant interactions. Thus, these variables are not considered further. Results of the main dependent measures are shown in Table 1.

Suspicion Check

Two persons were excluded from the sample prior to analysis because they did not believe that the social interaction sequences were really happening next door.

Helping Behaviour

A 2 (bystander) $\times$ 2 (danger) $\times$ 2 (response) analysis within a log linear model (LOGIT) revealed a significant interaction between danger and response, $Z = 2.13$, $SE = 0.94$, $Est. = -2.01$, $CI = 0.16$;

³In our opinion, the unexpected result that women did not help less than men (especially in the high danger condition) might be due to the fact that participants had the possibility to inform the experimenter about the emergency rather than to intervene personally in the critical situation. Therefore, despite their lower physical strength, women had the same possibilities to show a helping response as did men. Moreover, due to the labour-intensive execution of the present study, the sample size was comparatively small. As a consequence, the effects of gender of participant and gender of bystander on helping behaviour or any interactions probably were not significant due to low power. These results stand in contrast to previous research (e.g. Latané & Darley, 1968), which found that males helped more than females in bystander emergencies. Schwartz and Gottlieb (1970) explained this effect by stipulating that males want to impress female bystanders. In addition, especially for highly dangerous emergencies, women tend to hand over responsibility for helping in the presence of male bystanders (Solomon, Solomon, & Stone, 1978). Thus, future research investigating more thoroughly the effects of expected danger, gender of potential helper, and number and gender of bystanders on helping behaviour will be a promising endeavour.

3.85, $p < 0.04$. Less intervention occurred in the condition with low potential danger (31.7%) than in the condition with high potential danger (41.9%). However, this finding was qualified by a significant interaction between the factors danger, bystander, and response, $Z = -1.98$, $SE = 1.12$, $Est. = -2.22$, $CI = -4.42; -0.02$, $p < 0.05$. Follow-up analyses revealed a significant interaction between bystander and response in the condition with low danger, $\chi^2(1) = 8.95$, $p < 0.01$. Whereas 50% of the participants tried to help the victim when they were alone, only 5.9% tried to help the victim when a bystander was present. In contrast, the interaction between bystander and response was not significant in the condition with high potential danger, $\chi^2(1) = 0.85$, $p > 0.95$. Whereas 44.4% of the participants tried to help the victim when they were alone, 40% tried to help when a bystander was present. That is, the classic bystander-effect was replicated when the situation involved low potential danger but not when the situation involved high potential danger.

Reaction Time

A 2 (danger) $\times$ 2 (bystander) ANOVA with reaction time in seconds as a dependent variable revealed a marginal significant main effect of danger, $F(1, 27) = 3.06$, $p = 0.09$, $\eta^2 = 0.10$, indicating that participants in the high danger condition ($M = 355$, $SD = 51$) reacted faster than participants in the low danger condition ($M = 395$, $SD = 50$). Probably due to the low sample size of participants who intervened in the low danger/bystander condition, no further significant effects occurred, all F s < 1.37 , all p s > 0.25 .

Emergency Awareness

A similar ANOVA revealed a significant main effect of bystander, $F(1, 71) = 4.50$, $p < 0.05$, $\eta^2 = 0.06$. Participants in the bystander condition ($M = 4.58$, $SD = 1.41$) perceived the emergency less clearly and not as quickly as participants in the solitary condition ($M = 5.13$, $SD = 1.22$). However, this effect was qualified by a significant interaction between bystander and potential danger, $F(1, 71) = 7.48$, $p < 0.01$, $\eta^2 = 0.10$. Simple effect analyses revealed that no difference occurred between high ($M = 4.90$, $SD = 1.19$) and low ($M = 5.29$, $SD = 1.24$) potential danger, $F(1, 39) = 1.01$, $p = 0.32$, $\eta^2 = 0.03$, when the participant was alone. In contrast, in the presence of another bystander, participants in the condition with high potential danger ($M = 5.08$, $SD = 1.16$) perceived the emergency faster and more clearly than participants in the condition with low potential danger ($M = 3.86$, $SD = 1.46$), $F(1, 32) = 7.41$, $p < 0.01$, $\eta^2 = 0.19$.

Social Responsibility

A 2 (bystander) $\times$ 2 (danger) ANOVA revealed no significant effects, all F s < 1.86 , all p s > 0.17 .

Accepted Costs of Helping

A similar ANOVA revealed a significant interaction between bystander and potential danger, $F(1, 71) = 4.45$, $p < 0.05$, $\eta^2 = 0.06$. Follow-up analyses revealed that no difference occurred between high ($M = 4.81$, $SD = 1.22$) and low ($M = 5.00$, $SD = 1.35$) potential danger when the participant was alone, $F(1, 40) = 0.21$, $p = 0.65$, $\eta^2 = 0.01$. In contrast, when a bystander was present, participants in the condition with high potential danger ($M = 4.89$, $SD = 1.00$) were ready to accept more costs of helping than participants in the bystander condition with low potential danger ($M = 3.86$, $SD = 1.31$), $F(1, 31) = 6.66$, $p < 0.05$, $\eta^2 = 0.18$.

Mediational Analysis

Derived from the arousal: cost-reward model, in the context of mediational analyses (cf. Baron & Kenny, 1986) we tested associations between emergency-related danger, empathic arousal, cost-reward considerations, and helping intervention. The role of social responsibility was not further investigated, since we did not find any effects for that construct in the present context (see above). Within the remaining variables, we found two mediations which can be directly derived from the arousal: cost-reward model. First of all, the effect of emergency-related danger on accepted costs for helping is mediated by the experienced emergency awareness. Second, the effect of emergency-related danger on helping response is mediated by the increased willingness to take on increased costs for helping.

With regard to the first mediation, we found a significant impact of emergency-related danger on accepted costs for helping, $\beta = 0.42$, $t(31) = 2.58$, $p < 0.05$, and a significant impact of emergency-related danger on emergency awareness, $\beta = 0.43$, $t(32) = 2.72$, $p < 0.01$. Finally, potential danger and emergency awareness were simultaneously used as predictors for accepted costs. The overall regression was significant, $R^2 = 0.39$, $F(2, 30) = 9.42$, $p < 0.001$. Whereas the mediator (emergency awareness) received a significant regression weight, $\beta = 0.51$, $t(30) = 3.28$, $p < 0.01$, the regression weight for potential danger decreased to $\beta = 0.19$ and no longer reached significance, $t(30) = 1.25$, $p = 0.22$. A Sobel-Test revealed that the indirect effect of the independent variable (danger) on the dependent variable (accepted costs for helping) via the mediator (emergency awareness) was significantly different from zero ($Z = 2.06$, $p = 0.04$). In other words, the unmediated β -coefficient for the effect of danger on accepted costs for helping significantly decreased when the impact of emergency awareness was controlled for. Thus, emergency awareness mediates the effect of potential danger on accepted costs.

Next, concerning the second mediation mentioned earlier, it was tested whether accepted costs mediate the effect of potential danger on helping behaviour. Since the dependent variable (intervention: yes v no) was a dichotomous variable, we used a binary logistic regression analysis when required. First, a logistic regression analysis with potential danger as predictor and frequency of helping as criterion revealed a significant regression weight for potential danger, $\beta = 2.37$, $Wald(1) = 4.56$, $p < 0.04$. Second, potential danger significantly predicted the amount of accepted costs in case of helping, $\beta = 0.42$, $t(31) = 2.58$, $p < 0.02$. Finally, potential danger and accepted costs were used as predictors for frequency of helping behaviour. The overall logistic regression (omnibus test) was significant, $\chi^2(2) = 15.21$, $p < 0.001$. Whereas accepted costs of helping received a significant regression weight, $\beta = 1.68$, $Wald(1) = 6.85$, $p < 0.01$, the regression weight for potential danger decreased from $\beta = 2.37$ to $\beta = 1.79$ and no longer reached significance, $Wald(1) = 1.45$, $p > 0.22$. A Sobel Test revealed that the unmediated β -coefficient for the impact of danger on helping response marginally decreased when the impact of accepted costs for helping was statistically controlled for ($Z = 1.85$, $p = 0.06$). Thus, accepted costs partially mediate the effect of potential danger on frequency of helping behaviour.

DISCUSSION

Whereas previous research in the context of low dangerous emergencies has shown that bystanders systematically reduce the frequency of helping (bystander effect), the present study revealed that in the context of highly dangerous emergencies, this bystander effect does not occur. In addition, a mediational analysis supported the assumptions of the Piliavin (1981) arousal: cost-reward model

concerning the influence of emergency awareness (empathic arousal) and cost-reward considerations on helping intervention: The effect of potential danger on accepted costs of helping was mediated by emergency awareness. Dangerous situations faced in the presence of bystanders are recognized faster and less ambiguously as real emergency situations than harmless situations. As dangerous situations increase the costs for not helping the victim, participants were ready to accept more costs of helping than those in the bystander condition with low potential danger. In addition, the effect of danger on helping rate was mediated by accepted costs for helping. Both results are in line with the arousal: cost-reward model, which postulates that increased danger in emergencies increases the bystander's empathic arousal (which is directly connected to clarity and speed of emergency perception), alters cost-reward considerations, and thus finally increases helping responses. In addition, the postulated positive association between emergency-related danger, empathic arousal, emergency awareness, and helping response is supported by reaction time data showing that participants in the high danger condition reacted (marginally) faster than participants in the low danger condition.

IMPLICATIONS

First of all, the present study adds force to main propositions of the arousal: cost-reward model by showing that increased danger of an emergency (which should be directly associated with increased empathic arousal) alleviates the negative impact of a passive bystander on helping responses. Further mediational analyses supported the predictions of the arousal: cost-reward model: Increased danger was associated with higher emergency awareness and higher accepted costs for helping. In addition, the increased helping responses in the context of the dangerous emergency was associated with higher accepted costs for helping. In sum, the present study provides added value to the arousal: cost-reward model in a twofold way: First, it is the first to have directly tested the propositions of the earlier mentioned model in the context of a really dangerous emergency (and compared it to a less dangerous emergency). Moreover, it is the first study which provides mediational data on central assumptions concerning psychological processes postulated by the arousal: cost-reward model.

Moreover, the present study is the first to systematically compare bystander intervention with one or two bystanders in the context of low and high dangerous emergencies. Since former studies mainly used either only low (e.g. Chekroun & Brauer, 2002; Moriarty, 1975) or only high (e.g. Harari et al., 1985; Schwartz & Gottlieb, 1976) dangerous emergency situations, the present study provides valuable new insights concerning this context. In addition, the present study might alter the still negative perspective and implications surrounding the bystander effect thus far: The probability of receiving help decreases with an increasing number of bystanders. However, with regard to our research, this effect is restricted to non-dangerous emergencies. When people are in real trouble, they have a good chance to receive help even when more than one bystander is present in the emergency situation.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

First, we have to question whether participants really believed that the emergency situation was real. However, only two participants reported doubts as to the reality of the scenario. Moreover, observations of the experimenter and the confederate confirmed the plausibility of the experimental procedure, as most participants were clearly in a state of emotional distress when watching the victim's need.

Second, in our study, danger to the bystander is confounded with danger to the victim (as well as others in this vein and many real-life emergencies). Therefore, we cannot distinguish whether our effects were due to increased danger to the bystander, increased danger to the victim, or both. It would be a fruitful endeavour for future research to manipulate both independently from one another. Doing so would provide a further test of our hypotheses in the context of the arousal: cost-reward model, which similarly assumes two basic categories of potential costs and rewards for a bystander. One category is personal costs for helping, involving negative outcomes directly imposed on the helper for making a direct helping response (e.g. effort, injury, embarrassment). The other category involves costs associated with not helping the victim (e.g. guilt, criticism, shame, and empathic costs due to the bystander's awareness of the victim's continued distress). Our research shows that in high danger emergencies, the costs for not helping might have systematically exceeded the costs for helping, otherwise the bystander effect should not have been reduced in the high danger condition. However, different constellations of these costs might also have a differential impact on bystander intervention. For example, if there is only danger to the victim, the gain is higher if the bystander decides to give some help. But if there is only danger to the bystander, it is the cost of intervention that is higher. Although many real-life dangerous emergencies contain both high costs for the bystander and the victim, future research should manipulate these costs independently. Doing so would provide a purer test of this paper's hypothesis and conclusions of previous research.

Third, and finally, although the present study measured actual helping responses and reaction times, further behavioural data could have been provided in order to investigate our hypotheses. For example, additional observations could have been made such as: a) did those who intervened first initiate a conversation with the bystander at an early rather than a late point in time— or did interveners have no contact with the bystander?; b) if people initiated a conversation early rather than late, were they more likely to intervene?; c) did participants look anxiously or furtively to the confederate?; or d) did they conspicuously avoid eye contact with the confederate? All these behavioural indices might be particularly important for understanding what is happening in the emergency context. Hence, it might be rewarding for future research to measure these additional behavioural data in order to further clarify the important question about psychological processes underlying bystander intervention in dangerous emergencies.

ACKNOWLEDGEMENTS

We would like to thank Andreas Kastenmueller and Daniela Niesta for their help and cooperation in realizing this experiment.

The research reported in this article was made possible by grants from the German Scientific foundation (Deutsche Forschungsgemeinschaft [DFG]) to Peter Fischer, Stefan Schulz-Hardt, Tobias Greitemeyer, and Dieter Frey, project nr. FI 938/2-1.

REFERENCES

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research. Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.

- Borofsky, G. L., Stollak, G. E., & Messé, L. A. (1971). Sex differences in bystander reactions to physical assault. *Journal of Experimental Social Psychology*, 7, 313–318.
- Chekroun, P., & Brauer, M. (2002). The bystander effect and social control behavior: The effect of the presence of others on people's reactions to norm violations. *European Journal of Social Psychology*, 32, 853–866.
- Darley, J. M., & Latané, B. (1968). Bystander intervention in emergencies: Diffusion of responsibility. *Journal of Personality and Social Psychology*, 8, 377–383.
- Dovidio, J. F., Piliavin, J. A., Gaertner, S. L., Schroeder, D. A., & Clark, R. D. (1991). The arousal: Cost-reward model and the process of intervention: A review of the evidence. *Review of Personality and Social Psychology*, 12, 86–118.
- Garcia, S. M., Weaver, K., Moskowitz, G., & Darley, J. M. (2002). Crowded minds: The implicit bystander effect. *Journal of Personality and Social Psychology*, 83, 843–853.
- Harari, H., Harari, O., & White, R. V. (1985). The reaction to rape by American male bystanders. *The Journal of Social Psychology*, 125, 653–658.
- Harris, V. A., & Robinson, C. E. (1973). Bystander intervention: Group size and victim status. *Bulletin of the Psychonomic Society*, 2, 8–10.
- Howard, W., & Crano, W. D. (1974). Effects of sex, conversation location, and size of observer group on bystander intervention in a high risk situation. *Sociometry*, 37, 491–507.
- Hurley, D., & Allen, B. P. (1974). The effect of the number of people present in a nonemergency situation. *Journal of Social Psychology*, 92, 27–29.
- Latané, B., & Dabbs, J. M. (1975). Sex, group size, and helping in three cities. *Sociometry*, 38, 180–194.
- Latané, B., & Darley, J. M. (1968). Group inhibition of bystander intervention. *Journal of Personality and Social Psychology*, 10, 215–221.
- Latané, B., & Darley, J. M. (1970). *The unresponsive bystander: Why doesn't he help?* New York: Appleton-Century-Crofts.
- Latané, B., & Darley, J. M. (1976). *Help in a crisis: Bystander response to an emergency*. Morristown, NJ: General Learning Press.
- Latané, B., & Elman, D. (1970). *The hand in the till*. In B. Latané, & J. M. Darley (Eds.), *The unresponsive bystander: Why doesn't he help?* New York: Appleton-Century-Crofts.
- Latané, B., & Nida, S. (1981). Ten years of research on group size and helping. *Psychological Bulletin*, 89, 308–324.
- Latané, B., & Rodin, J. (1969). A lady in distress: Inhibiting effects of friends and strangers on bystander intervention. *Journal of Experimental Social Psychology*, 5, 189–202.
- Levine, M. (1999). Rethinking bystander non-intervention: Social categorization and the evidence of witnesses at the James Bulger murder trial. *Human Relations*, 52, 1999.
- Levine, M., Cassidy, C., & Brazier, G. (2002). Self-categorization and bystander non-intervention: Two experimental studies. *Journal of Applied Social Psychology*, 32, 1452–1463.
- Levy, P., Lundgren, D., Ansel, M., Fell, D., Fink, B., & McGrath, J. E. (1972). Bystander effect in a demand-without-threat situation. *Journal of Personality and Social Psychology*, 24, 166–171.
- Misavage, R., & Richardson, J. T. (1974). The focusing of responsibility: An alternative hypothesis in help-demanding situations. *European Journal of Social Psychology*, 4, 5–15.
- Moriarty, T. (1975). Crime, commitment and the responsive bystander: Two field experiments. *Journal of Personality and Social Psychology*, 31, 370–376.
- Piliavin, J. A. (1981). *Emergency intervention*. Academic Press: New York.
- Prentice, D. A., & Miller, D. T. (1996). Pluralistic ignorance and the perpetuation of social norms by unwitting actors. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 161–209). San Diego, CA: Academic Press.
- Ross, A. S., & Braband, J. (1973). Effect of increased responsibility on bystander intervention: II. The cue value of a blind person. *Journal of Personality and Social Psychology*, 25, 254–258.
- Schroeder, D. A. (1995). *The psychology of helping and altruism*. New York: McGraw-Hill.
- Schwartz, S. H., & Clausen, G. T. (1970). Responsibility, norms, and helping in an emergency. *Journal of Personality and Social Psychology*, 16, 299–310.
- Schwartz, S. H., & Gottlieb, A. (1976). Bystander reactions to a violent theft: Crime in Jerusalem. *Journal of Personality and Social Psychology*, 34, 1188–1199.
- Solomon, L. Z., Solomon, H., & Stone, R. (1978). Helping as a function of number of bystanders and ambiguity of emergency. *Personality and Social Psychology Bulletin*, 4, 318–321.

Copyright of European Journal of Social Psychology is the property of John Wiley & Sons Ltd. 1996 and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.