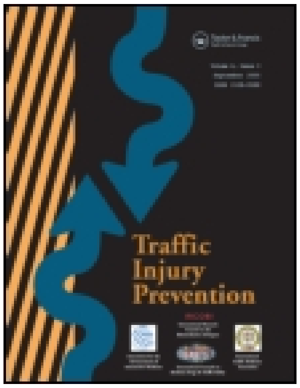

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The Effects of Peer Influence on Adolescent Pedestrian Road-Crossing Decisions

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Objective: Adolescence is a high-risk period for pedestrian injury. It is also a time of heightened susceptibility to peer influence. The aim of this research was to examine the effects of peer influence on the pedestrian road-crossing decisions of adolescents.

Methods: Using 10 videos of road-crossing sites, 80 16- to 18-year-olds were asked to make pedestrian road-crossing decisions. Participants were assigned to one of 4 experimental conditions: negative peer (influencing unsafe decisions), positive peer (influencing cautious decisions), silent peer (who observed but did not comment), and no peer (the participant completed the task alone). Peers from the adolescent's own friendship group were recruited to influence either an unsafe or a cautious decision.

Results: Statistically significant differences were found between peer conditions. Participants least often identified safe road-crossing sites when accompanied by a negative peer and more frequently identified dangerous road-crossing sites when accompanied by a positive peer. Both cautious and unsafe comments from a peer influenced adolescent pedestrians' decisions.

Conclusions: These findings showed that road-crossing decisions of adolescents were influenced by both unsafe and cautious comments from their peers. The discussion highlighted the role that peers can play in both increasing and reducing adolescent risk-taking.

Keywords: adolescent, peer influence, risk, pedestrian, road safety, pedestrian safety

Introduction

Adolescence is a high-risk period for pedestrian injury. In the UK, the risk of 16- to 24-year-olds being killed or seriously injured has been calculated to be twice that of 25- to 75-year-olds (Holland and Hill 2007; Holland et al. 2009). It is generally assumed that by adolescence, young people have developed sufficient knowledge and skills to behave safely in a pedestrian environment. Consequently, it is expected that pedestrian injury is caused by other factors for this age group, such as cell phone distractions when crossing a road (Neider et al. 2010; Schwebel et al. 2012; Stavrinos et al. 2009, 2011) and risk-taking. Several researchers have identified adolescents as the pedestrians most likely to demonstrate high-risk behaviors such as thrill seeking, unsafe road-crossing behavior, crossing at risky places, and not using designated road-crossing sites despite a sound knowledge of road safety rules (Greene et al. 2000; Musselwhite et al. 2010; Sullman and Mann 2009).

Other factors implicated in adolescent pedestrian behavior include norm conformity and the influence of the peer group. Most people will be influenced by their peers at some time during their lives; however, peer pressure is most often associated with the adolescent period of development (Clasen and Brown 1985). Peer influences have been reported with regard to health behaviors such as smoking, drug use, and driving (Farrell and White 1998; Kobus 2002; Simons-Morton et al. 2005, 2011). Although peer influence is frequently conceptualized as negative, Maxwell (2002) found evidence that peers can have positive influences on adolescent behavior. Maxwell studied the self-reported tobacco, marijuana, and alcohol use of 16- to 18-year-olds. She found that substance-using friends encouraged adolescents to begin and maintain substance use and, in some cases, nonusing friends encouraged adolescents to stop or avoid substance use. Maxwell (2002) concluded that there was no single consistent pattern for the effect of peer influence.

There is also a growing interest in the influence of peers on pedestrian attitudes and behavior (Elliot 2004; Tolmie et al. 2006). Elliot (2004) surveyed 11- to 16-year-olds and found that perceived pressure from friends was an important factor influencing adolescent self-reported pedestrian decisions to use crossings, cross between parked cars, and cross the road in order to make a car slow down. Tolmie et al. (2006) investigated the influence of peers on attitudes toward pedestrian behaviors during early adolescence. They presented 12- to 15-year-olds with descriptions of cautious and risky pedestrian behaviors (such as waiting for a green light before crossing and jumping over a safety barrier in order to cross the road). They measured adolescents' attitudes toward the described behavior, adolescents' perceptions of peer approval, and peer performance of

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the behaviors. In addition, they measured adolescents' intentions to perform the behaviors themselves, the frequency with which they performed the behaviors over a 2-week period, and the number of accidents and/or near-misses they had experienced in actual road contexts. Tolmie et al. (2006) found that most of the adolescents did not show strongly positive attitudes toward risky pedestrian behavior but they thought that their peers were likely to engage in risky behavior. In addition, actual risky behavior was associated with higher levels of near-misses and accidents. Tolmie et al. (2006) concluded that attempts to be like their peers influenced adolescents toward riskier intentions and actions that increased their risk of injury.

Several studies have also found gender differences in risk perceptions and behaviors. For example, men were found to underestimate pedestrian risk more than women (Holland and Hill 2007). Faria et al. (2010) observed pedestrians crossing a busy urban road and found that men were more likely than women to follow other pedestrians who had started to cross a road. More risky road crossings and behavior have been found for boys compared to girls (Musselwhite et al. 2010). In addition, Simons-Morton et al. (2005) found that teenage drivers drive faster and leave shorter gaps (braking distances) between their vehicle and the vehicle ahead of them when accompanied by a male teenage passenger. However, whether males or females are more susceptible to peer influence may depend on the gender of the peer (Gaughan 2006).

A major problem with research in this area involves finding ways to measure peer influence safely and in a controlled manner without putting the pedestrian at risk. A frequently used method is to use questionnaires that address hypothetical scenarios (McGhie et al. 2012), often based on the theory of planned behavior (Ajzen 1991; Evans and Norman 1998) to predict the influence of norms on behavioral intention rather than the influence of peers per se. Some researchers have used more dynamic stimuli, such as computer animations and simulations alongside questionnaires (Tolmie et al. 2006). In most cases, the type of peer influence is difficult to control. In addition, previous research on the influence of peers on adolescent pedestrians has focused on early to mid-adolescence (e.g., Elliot 2004; Tolmie et al. 2006). The influence of peers on older adolescent pedestrians has not been well researched. Although the influence of peers on risk-taking has been found to peak in mid-adolescence, it is much more prevalent in older adolescents than adults (Albert and Steinberg 2011; Gardner and Steinberg 2005; Simons-Morton et al. 2005). In addition, older adolescents have been identified as a relatively high-risk group of pedestrians (Holland and Hill 2007), particularly those who are in school full-time because they walk frequently and take risks (Schwebel et al. 2009).

The aim of this research was to investigate peer influence on the pedestrian decisions of 16- to 18-year-olds in an experimental setting using video clips of different road crossing sites. Peers drawn from the adolescents' own friendship groups were used and the type of influence (negative or positive) was controlled. This provided a more ecologically valid approach that also allowed experimental control. Short video clips were used to provide more dynamic stimuli than the written descriptions or static photographs often used for this type of research (e.g., Evans and Norman 2003; Pfeffer 2005). It was hypothesized that adolescents will make more unsafe road-crossing decisions when accompanied by a peer who expresses unsafe decisions and fewer unsafe road-crossing decisions when accompanied by a peer who expresses cautious decisions. Gender and age differences in susceptibility to peer influence were also explored.

Method

Participants

The sample included 80 adolescent volunteers and 60 adolescent peers aged 16 to 18 years (mean age = 16.9, SD = 0.75) recruited through high school and further education establishments. Participants were invited to take part in the experiment either on their own or with a friend (the experimental peer). The role of participant and peer was determined by random assignment for each pair. Because naturally occurring friendship pairs were recruited, the gender distribution of peers to pedestrians was not controlled. In total there were 30 male and 50 female participants and 23 male and 37 female peers. This resulted in a gender combination of 16 male pedestrians with a male peer, 29 female pedestrians with a female peer, 8 male pedestrians with a female peer, and 7 female pedestrians with a male peer. Participants normally walked to their schools/education sites.

Pedestrian Road-Crossing Sites

Ten short video clips of different road-crossing sites were filmed using a digital camera and displayed on a laptop computer in random order. All videos were taken between 8:00 a.m. and 9:30 a.m. on a weekday morning, one of the busiest times for adolescents making road crossings (i.e., in order to get to school or college). The road-crossing sites were not filmed in the same city where participants lived and sites were unfamiliar to the participants and peers. Five films showed relatively safe road crossing sites and 5 showed unsafe crossing sites. In order to obtain a realistic view of the road crossing sites, the video clips started at a central point and then panned to left and right and then back to the center. Each video clip lasted 10 s, which allowed one scan of the road to the left, then right, then back to the center. Figures 1 and 2 show images of left, center, and right views of examples of road-crossing sites.

Though recognizing that no road crossing site is completely safe, video clips were categorized as dangerous if they showed heavy traffic, fast-moving vehicles, complex junctions, and/or a poor view of oncoming traffic. These were examples noted by Ward et al. (1994) of the types of sites associated with high rates of pedestrian casualties. Pedestrian sites shown in the video clips and designated as dangerous (d) were (d-i) fast-moving traffic on a 2-lane road with no designated crossing and a railway crossing several meters to the left; (d-ii) fast-moving traffic on a 3-lane road with no designated crossing; (d-iii) a residential street with a complex junction and a blind

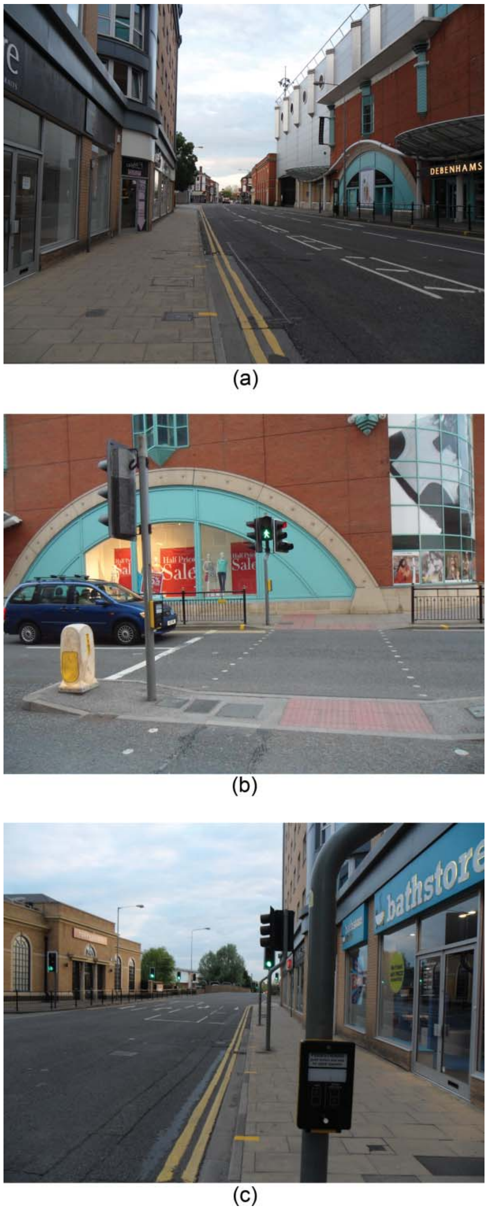

Fig. 1. (a) Left, (b) center, and (c) right views of a safe road-crossing site (color figure available online).

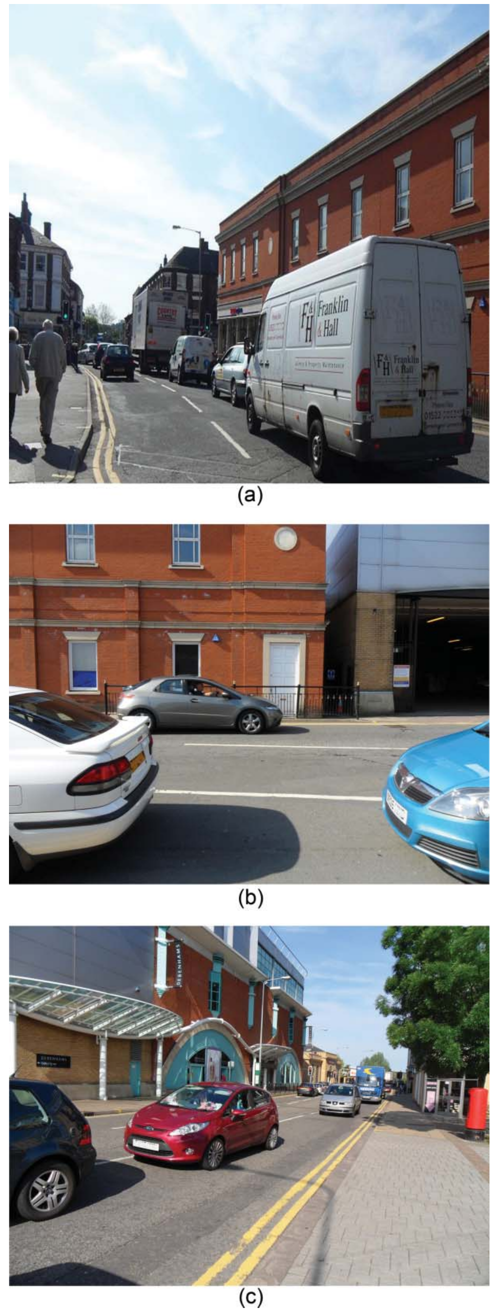

Fig. 2. (a) Left, (b) center, and (c) right views of a dangerous road-crossing site (color figure available online).

bend; (d-iv) a light-controlled crossing with a light image of a red man and traffic; (v) 2 cars blocking the view of the pedestrian, making it difficult to see traffic. Video clips designated as relatively safe (s) were (s-i) a two lane road with very light traffic and a clear view of the road; (s-ii) a narrow 2-lane road with no traffic; (s-iii) a light-controlled crossing with no traffic; (s-iv) a light-controlled crossing with a light image of a green man shown and traffic moving away; (s-v) a light-controlled crossing with a light image of a green man showing and stationary traffic.

Procedure

All testing was done in a quiet classroom. Each pedestrian was seated at a table with the laptop computer in front of them. An independent samples design was used with 20 pedestrians assigned to one of 4 conditions. Three of these conditions required a peer. Participants were assigned to conditions randomly.

The 4 conditions were no peer, negative peer, positive peer, and silent peer. In the no peer condition, the pedestrian was given a set of standardized instructions. The instructions asked the participants to watch the video clips on a computer and decide whether they thought the road-crossing site shown was safe or unsafe. In the remaining 3 conditions, the participant was accompanied by a peer. In the silent peer condition, the peer was asked to remain silent throughout the experiment. In the remaining conditions, the participant read the standardized instructions for the video judgement task while the peer was taken out of the room. The peer was given a set of standardized instructions depending on which of the 3 conditions they were assigned to. In the positive peer condition, the peer was asked to encourage safe decisions and discourage unsafe decisions. In the negative peer condition, the peer was asked to encourage the participant to make unsafe decisions (to cross at the unsafe crossings and discourage them from crossing at the safe crossings). Peers in the positive peer and negative peer conditions were given examples of prompts for the participant, such as "You can cross there, that looks safe to me" or "Oh no you shouldn't cross there you can't see behind the cars." The positive and negative peers were told to speak when the experimenter showed a colored flashcard. These were blue to indicate a safe site and orange for an unsafe site. This allowed experimental control over when the peer was expected to comment and to indicate to the peers the sort of comment they should make. In all 3 peer conditions, the peer was seated just behind the pedestrian and next to the experimenter in such a position that the peer could see the flashcard but the pedestrian could not. All participants and peers engaged with the task; peers followed the experimental instructions and made appropriate comments when prompted. Peers and participants engaged in natural conversation at the beginning and end of the test session.

Scoring Procedure and Data Analysis

Participants were given one point for each video clip correctly identified as safe or dangerous. The total possible overall score was 10. This comprised a total possible score of 5 for the set of video clips showing dangerous road crossings and a total possible score of 5 for the set of video clips showing safe road crossings. Data were analyzed using analysis of variance (ANOVA) in SPSS version 19 (IBM).

Ethics

Ethical approval was obtained from the Faculty Ethics Committee at the University of Lincoln. The ethical code of conduct of the British Psychological Society was followed. Permission was obtained from teachers, parents/guardians, and the participants themselves. Participants who had witnessed or been involved in a car or pedestrian collision were excluded from the experiment to prevent any psychological trauma. All participants were informed that their data would be treated confidentially and stored anonymously. Participants were informed before taking part that the research was about adolescent road-crossing decisions. They were made fully aware of the hypotheses regarding peer influence immediately after taking part. The debrief information included information to raise awareness about the potential of peers to influence safety decisions negatively or positively and followed up in class discussions. In addition, participants were given the chance to ask any questions relating to the study and given contact details and a participant number to refer to if they wanted to withdraw their data at a later date.

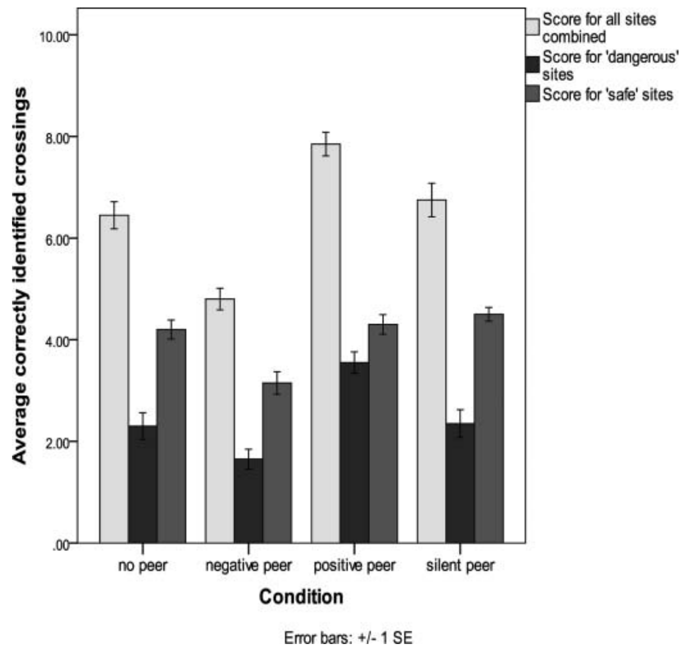

Fig. 3. Mean number of correctly identified safe, dangerous, and all road-crossing sites by condition.

Results

The mean scores for the correct identification of road-crossing sites as safe or dangerous for each peer condition and road-crossing type can be seen in Figure 3. The lowest number of correct identifications overall was obtained for the negative peer condition and the highest was for the positive peer condition. In addition, participants correctly identified more safe road-crossing sites than dangerous road-crossing sites. Results were analyzed using a mixed ANOVA with condition as the between-group factor (4 levels) and road-crossing type as the within-group factor (2 levels). A statistically significant effect of experimental condition was found, $F(3, 76) = 22.83$, $P < .001$. The highest overall scores for correctly identifying road-crossing sites as safe or dangerous were achieved by participants in the positive peer condition and the lowest scores were in the negative peer condition. There were significantly fewer correct identifications overall for the negative peer condition than for all other groups ($P < .001$). The effect of crossing type was statistically significant, $F(1, 76) = 88.15$, $P < .001$. Participants identified more safe sites than dangerous sites overall. In addition, a significant interaction between condition and crossing type was found, $F(3, 76) = 3.32$, $P = .024$.

Post hoc analyses of the interaction between condition and road-crossing site were conducted using Bonferroni *t*-tests ($P = .004$ for 12 comparisons). Pedestrians more often correctly identified dangerous road crossing sites when accompanied by a positive peer. Participants in the positive peer condition correctly identified more dangerous sites than participants in the negative peer ($P < .001$), silent peer ($P = .004$), and no peer ($P = .002$) conditions. All other comparisons for dangerous sites were nonsignificant. Pedestrians least often identified safe road crossing sites when accompanied by

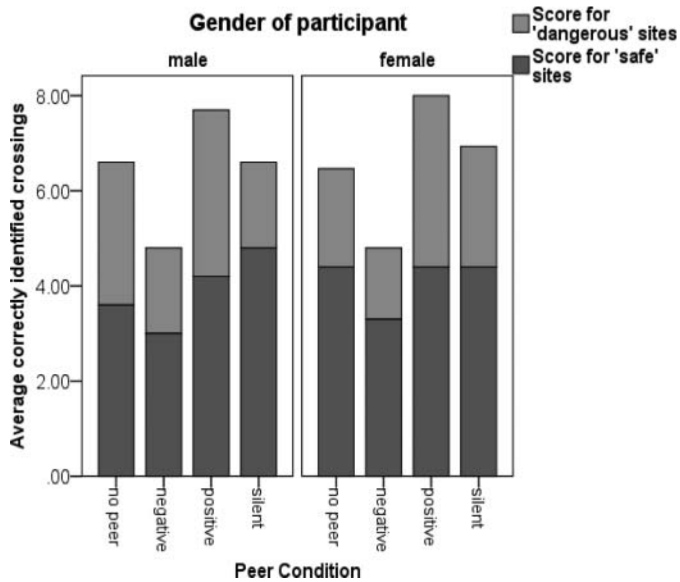

Fig. 4. Mean number of correctly identified safe and dangerous road-crossing sites by gender of participant.

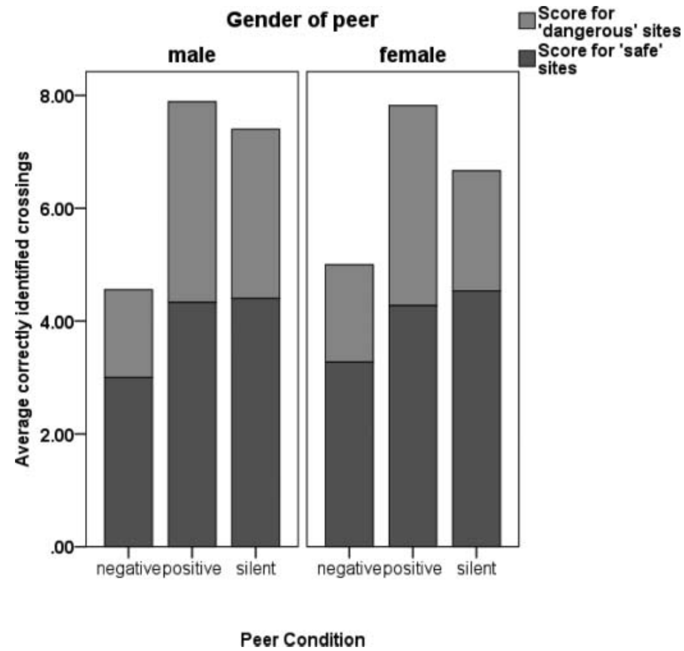

Fig. 5. Mean number of correctly identified safe and dangerous road-crossing sites by gender of peer.

a negative peer. Participants in the negative peer condition correctly identified fewer safe road crossing sites than participants in the positive peer ($P < .001$), silent peer ($P < .001$), and no peer ($P = .001$) conditions. All other comparisons for safe sites were nonsignificant.

Exploratory analyses of gender differences involved comparisons of male and female participants, comparisons of male and female peers, and comparisons between the 4 pedestrian–peer gender combinations. Analyses of the effect of participant gender were carried out using Mann Whitney *U* tests due to small and unequal group sizes (see Figure 4). Bonferroni corrections were applied to all tests (using $P = .006$ for 8 comparisons). No significant differences were found between male (m) and female (f) participants for any of the conditions or type of road-crossing site. For the positive peer condition, safe sites U (m = 10, f = 10) = 40.00, $P = .41$, and dangerous sites U (m = 10, f = 10) = 48.50, $P = .90$. For the negative peer condition, safe sites U (m = 10, f = 10) = 41.00, $P = .48$, and dangerous sites U (m = 10, f = 10) = 39.50, $P = .39$. For the silent peer condition, safe sites U (m = 5, f = 15) = 24.50, $P = .19$, and dangerous sites U (m = 5, f = 15) = 24.50, $P = .24$. For the no peer condition, safe sites U (m = 5, f = 15) = 16.50, $P = .05$, and dangerous sites U (m = 5, f = 15) = 20.50, $P = .13$.

A series of 2 (gender) × 4 (conditions) ANOVAs were used for the analyses for gender of peer. The results for condition were reported earlier. The results for peer gender were all nonsignificant and no significant interaction between gender of peer and condition were found (see Figure 5). Because only 3 conditions included a peer, the no peer condition was excluded from this analysis. For the overall score, the main effect of peer gender was nonsignificant, $F(1, 54) = 0.26$, $P = .61$. The interaction between gender of peer and condition was nonsignificant, $F(2, 54) = 1.31$, $P = .28$. For safe road-crossing sites, the main effect of peer gender was nonsignificant, $F(1, 54) = 0.25$, $P = .62$, and the interaction between gender of peer and condition was nonsignificant, $F(2, 54) = 0.19$, $P = .83$. For dangerous road-crossing sites, the main effect of peer gender was nonsignificant, $F(1, 54) = 0.70$, $P = .41$, and the interaction between gender of peer and condition was nonsignificant, $F(2, 54) = 1.19$, $P = .31$.

In addition, no significant difference was found between the 4 pedestrian–peer gender combinations (male pedestrian with male peer, female pedestrian with female peer, male pedestrian with female peer, and female pedestrian with male peer) using a one-way ANOVA because cell sizes were too small for factorial analyses (see Table 1). For the overall total score, $F(3, 56) = 0.29$, $P = .83$; for safe sites, $F(3, 56) = 0.61$, $P = .61$; for dangerous sites, $F(3, 56) = 0.24$, $P = .87$.

In addition, post hoc analyses were carried out (with Bonferroni corrections, $P = .017$) to explore age differences within the sample (see Table 2). The sample was divided into 3 age groups (16 years $n = 28$, 17 years $n = 33$, 18 years $n = 19$) and compared using a one-way ANOVA. No significant differences between age groups were observed for the overall score, $F(2, 77) = 0.92$, $P = 0.40$; for dangerous sites, $F(2, 77) = 0.02$, $P = .98$; and for safe sites, $F(2, 77) = 3.21$, $P = .046$.

Discussion

The video-based road-crossing decisions of adolescents were influenced by both unsafe and cautious comments from their peers, supporting the hypothesis. Adolescents in the negative peer condition identified 3.15 (63%) safe crossing places compared to 4.3 (86%) for adolescents in the positive peer condition, an average of 23 percent less. They also identified 1.65 (33%) of the dangerous crossing places compared to 3.55

Table 1. Mean correct identifications of safe, dangerous, and all road-crossing sites for participant/peer gender combination

Road crossing site category	Male with male peer		Female with female peer		Male with female peer		Female with male peer	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Safe sites	3.69	1.25	4.07	0.98	4.11	0.93	4.14	0.69
Dangerous sites	2.56	1.36	2.46	1.20	2.33	1.32	2.86	1.57
Overall	6.25	1.95	6.46	1.71	6.44	1.33	7.00	1.91

(71%) for adolescents in the positive peer condition, an average of 38 percent less. When prompted by a peer to consider a dangerous road-crossing site as safe, participants showed that they were influenced by the peer. However, the results also showed that peer influence can have a protective effect. Adolescents in the positive peer condition correctly identified 3.55 (71%) dangerous crossing places compared to those in the silent peer condition (2.35, 47%), the no peer condition (2.30, 46%), as well as the negative peer condition (1.65, 33%). The current findings support those of previous studies using self-report measures to investigate peer influences on adolescent risk-taking in pedestrian and other health contexts (Kobus 2002; Maxwell 2002; Tolmie et al. 2006).

Our research focused on a relatively simple road-crossing decision to test knowledge that would be expected of the age group of participants involved. In addition, the strength of peer influence on young people should be on the decline for the age group tested (Albert and Steinberg 2011). Despite this, our sample of adolescents was influenced by their peers. Because our participants chose a friend to accompany them to the experiment, our results support previous research findings that friends play an important role in adolescent health and risk behaviors. For example, researchers have found that adolescent alcohol use was influenced by close friends (Urberg et al. 1997) and that negative peer influence from a close friend was a predictor of future risky behavior (Allen et al. 2006). Such research has shown that friends influence each other, but it is often unclear whether this is through exerting their ideas on another or because young people tend to choose friends who are similar to themselves (Fisher and Bauman 1988). Our experiment demonstrated that a friend was able to directly exert an influence on another.

Peer influence appeared to be consistent across gender groupings in our study. No significant differences between male and female pedestrians and no significant effects of gender of peer were found. This may have been due to small sample sizes. In addition, because the gender combination of peers to pedestrians in our research was mainly same-sex pairings, no firm conclusions about the influence of the gender of the peer on pedestrian behavior could be made.

Table 2. Mean correct identifications of safe, dangerous, and all road-crossing sites by age group

Road crossing site category	16-Year-olds		17-Year-olds		18-Year-olds	
	Mean	*SD*	Mean	*SD*	Mean	*SD*
Safe sites	3.68	1.12	4.18	0.88	4.31	0.75
Dangerous sites	2.50	1.29	2.45	1.30	2.42	1.17
Overall	6.14	1.84	6.58	1.41	6.74	1.52

The limitations of this study include factors relevant to the experimental context. Participants did not have to make a decision that would have put them at any real risk of injury for ethical reasons. The task was relatively simple in that it did not require the participant to actually cross a road. In addition, participants were not given a context for the road-crossing decision. It would be interesting for future studies to investigate peer influence on decisions made in the context of hurrying to reach a specific destination or at different times of day. We used an independent samples design to eliminate practice effects from repeated exposure of participants to the experimental materials. However, this design prevents any comparison of an individual participant's performance before and after exposure to peer influence. The influence of a single peer was manipulated rather than that of a peer group, and the type of peer influence tested in this experiment was overt influence made through direct suggestion. Other types of peer influence, such as modeling and more subtle normative regulation (Brown 2004), were not tested. Although the peers were chosen by the participants themselves to accompany them to the experiment, the actions of the peer were prompted by the researchers for experimental control and effect. The assertiveness of the peer was not controlled. In addition, the risk/safety orientations of the peers and whether these might be known to the participants were not measured. Consequently, the influence of the peer on the pedestrian may be different to naturally occurring incidents. However, within the bounds of ethical constraints, we aimed to achieve a realistic effect by using video clips of real road-crossing sites taken from the roadside perspective of a pedestrian attempting to cross a road. The experimental method allowed us to directly test different types of peer influence on adolescent decision making. This furthers the results of previous research that relied on self-report measures (e.g., Elliot 2004; Evans and Norman 2003; Tolmie et al. 2006). Research involving observations of adolescent pedestrian behavior at real road-crossing sites would be a valuable addition. This would provide information about peer influences on actual behavior in traffic. However, although more ecologically valid, observation also involves limitations; for example, it may not be possible to note any verbal influences.

Future research could include a measure of the closeness of the peer friendship and whether one member of the pair was more dominant than the other. In addition, research on the effects of a range of different group dynamics is recommended, including gender. With regards to the pedestrian task, the effects of peers on other, potentially more risky, types of crossing decisions are needed, such as judging traffic gaps. The use of pedestrian simulation would be valuable in this respect (Schwebel et al. 2008). Safety education often focuses on the individual and his or her behavior, but individuals are also peers and potential influencers of their friends' behaviors. More research is needed on the most effective ways to make use of peer influence to promote young people's health and the most effective ways of counteracting negative peer influence.

In conclusion, although the emphasis on road safety campaigns targeted at young people tends to be on high-risk driving, the risks of pedestrian injury should not be overlooked. Because the influence of peers is important in the lives of young people, the potential for using this influence as a source of learning should be promoted.

References

Ajzen I. The theory of planned behavior. *Organ Behav Hum Decis Process.* 1991;50:179–211.

Albert D, Steinberg L. Peer influences on adolescent risk behavior. In Bardo M, Fishbein D, Milich R, eds. *Inhibitory Control and Drug Abuse Prevention: From Research to Translation*. New York, NY: Springer; 2011:211–226.

Allen J, Porter M, McFarland C. Leaders and followers in adolescent close friendship: susceptibility to peer influence as a predictor of risky behavior, friendship stability, and depression. *Dev Psychopath.* 2006;81:155–172.

Brown BB. Adolescents' relationships with peers. In Lerner RM, Steinberg L, eds. *Handbook of Adolescent Psychology.* 2nd ed. New York, NY: John Wiley & Sons; 2004:363–394.

Clasen D, Brown B. The multidimensionality of peer pressure in adolescence. *J Youth Adolesc.* 1985;14:451–468.

Elliot MA. *The Attitudes and Behaviour of Adolescent Road Users: An Application of the Theory of Planned Behaviour*. London, UK: Department for Transport; 2004. TRL Report TRL601.

Evans D, Norman P. Understanding pedestrians' road crossing decisions: an application of the theory of planned behavior. *Health Educ Res Theory Pract.* 1998;13:481–489.

Evans D, Norman P. Predicting adolescent pedestrians' road crossing intentions: an application and extension of the theory of planned behavior. *Health Educ Res Theory Pract.* 2003;18:267–277.

Faria J, Krause S, Krause J. Collective behavior in road crossing pedestrians: the role of social information. *Behav Ecol.* 2010;21:1236–1242.

Farrell A, White K. Peer influences and drug use among urban adolescents: family structure and parent–adolescent relationship as protective factors. *J Consult Clin Psychol.* 1998;66:248–258.

Fisher LA, Bauman KE. Influence and selection in the friend–adolescent relationship: findings from studies of adolescent smoking and drinking. *J Appl Soc Psychol.* 1988;18(4):289–314.

Gardner M, Steinberg L. Peer influence on risk taking, risk preference, and risky decision making in adolescence and adulthood: an experimental study. *Dev Psychol.* 2005;41:625–635.

Gaughan M. The gender structure of adolescent peer influence on drinking. *J Health Soc Behav.* 2006;47:47–61.

Greene K, Krcmar M, Walters LH, Rubin DL, Hale JL. Targeting adolescent risk taking behaviors: the contributions of egocentrism and sensation-seeking. *J Adolesc.* 2000;23:439–461.

Holland CA, Hill R. The effect of age, gender and driver status on pedestrians' intentions to cross the road in risky situations. *Accid Anal Prev.* 2007;39:224–237.

Holland CA, Hill R, Cooke R. Understanding the role of self-identity in habitual risky behaviours: pedestrian road-crossing decisions across the lifespan. *Health Educ Res.* 2009;24:674–685.

Kobus K. Peers and adolescent smoking. *Addiction.* 2002;98(1):37–55.

Maxwell KA. Friends: the role of peer influence across adolescent risk behaviors. *J Youth Adolesc*. 2002;31(4):267–277.

McGhie A, Lewis I, Hyde MK. The influence of conformity and group identity on drink walking intentions: comparing intentions to drink walk across risky pedestrian crossing scenarios. *Accid Anal Prev.* 2012;45:639–645.

Musselwhite C, Avineri E, Fulcher E, Susilo Y. *Understanding Public Attitudes to Road Safety—Literature Review: Final Report*. London, UK: Department for Transport; 2010. Road Safety Research Report 112.

Neider MB, McCarley JS, Crowell JA, Kaczmarski H, Kramer AF. Pedestrians, vehicles, and cell phones. *Accid Anal Prev*. 2010;42:589–594.

Pfeffer K. Rural and urban children's understanding of safety and danger on the road. In: Underwood G, ed. *Traffic & Transport Psychology Theory and Application*. Amsterdam, The Netherlands: Elsevier; 2005:27–36.

Schwebel D, Gaines J, Severson J. Validation of virtual reality as a tool to understand and prevent child pedestrian injury. *Accid Anal Prev.* 2008;40:1394–1400.

Schwebel D, Stavrinos D, Byington KW, Davis T, O'Neill EE, de Jong D. Distraction and pedestrian safety: how talking on the phone, texting, and listening to music impact crossing the street. *Accid Anal Prev*. 2012;45:266–271.

Schwebel D, Stavrinos D, Kongable EM. Attentional control, high intensity pleasure, and risky pedestrian behavior in college students. *Accid Anal Prev*. 2009;41:658–661.

Simons-Morton B, Lerner N, Singer J. The observed effects of teenage passengers on the risky driving behavior of teenage drivers. *Accid Anal Prev*. 2005;37:973–982.

Simons-Morton BG, Ouimet MC, Zhang Z, et al. The effect of passengers and risk-taking friends on risky driving and crashes/near crashes among novice teenagers. *J Adolesc Health*. 2011;49:587–593.

Stavrinos D, Byington K, Schwebel D. Effect of cell phone distraction on pediatric pedestrian injury risk. *Pediatrics.* 2009;123:175–189.

Stavrinos D, Byington K, Schwebel D. Distracted walking: cell phones increase injury risk for college pedestrians. *J Safety Res.* 2011;42:101–107.

Sullman M, Mann H. The road user behavior of New Zealand adolescents. *Transp Res Part F Traffic Psychol Behav.* 2009;12:494–502.

Tolmie A, Thomson J, O'Connor R, et al. *The Role of Skills, Attitudes and Perceived Behavioural Control in the Pedestrian Behavioural Control in the Pedestrian Decision-Making of Adolescents Aged 11–15 Years*. London, UK: Department for Transport; 2006. Road Safety Research Report 68.

Urberg KA, Değirmencioğlu SM, Pilgrim C. Close friend and group influence on adolescent cigarette smoking and alcohol use. *Dev Psychol.* 1997;33:834–844.

Ward H, Cave J, Morrison A, et al. *Pedestrian Activity and Pedestrian Risk*. London, UK: AA Foundation for Road Safety Research; 1994.