**The Influence Of Conformity and Group Identity on Drink Walking Intentions:
Comparing Intentions To Drink Walk Across Risky Pedestrian Crossing Scenarios**

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Abstract

Despite the dangers associated with drink walking, limited research is currently available regarding the factors which influence individuals to engage in this risky behaviour. This study examined the influence of psychosocial factors upon individuals' intentions to drink walk across four experimental scenarios (and a control condition). Specifically, a 2 x 2 repeated measures design was utilised in which all of the scenarios incorporated a risky pedestrian crossing situation (i.e., a pedestrian crossing against a red man signal) but differed according to the level of group identity (i.e., low/strangers, high/friends) and conformity (low, high). Individuals were assessed for their intentions to drink walk within each of these different scenarios. Undergraduate students (N = 151), aged 17 to 30 years, completed a questionnaire. Overall, most of the study's hypotheses were supported with individuals reporting the highest intentions to drink walk when in the presence of friends (i.e., high group identity) and their friends were said to be also crossing against the red man signal (i.e., high conformity). The findings may have significant implications for the design of countermeasures to reduce drink walking. For instance, the current findings would suggest that potentially effective strategies may be to promote resilience to peer influence as well as highlight the negative consequences associated with following the behaviour of other intoxicated pedestrians who are crossing against a red signal.

Keywords: intoxicated pedestrian; drink walking; risky pedestrian crossing scenarios; identity; conformity; intentions

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1.0 Introduction

Pedestrian crashes represent a significant proportion, approximately 13 to 14%, of all road related fatalities and serious injuries in Australia (Bureau of Infrastructure, Transport and Regional Economics, 2010; King, Soole, and Ghafourian, 2009). In Australia, approximately 45% of these pedestrian fatalities involve pedestrians who are intoxicated or “drink walking”, which amounts to around 140 deaths each year (Lang et al., 2003). In Australia, evidence suggests that young persons, aged 17 to 30 years are an over-represented age group in these alcohol related pedestrian crashes (ATSB, 2001; Lang, et al., 2003).

Presently, there is no standard, universally accepted definition of drink walking, which may be attributed to the fact that there is no legal blood alcohol limit for pedestrians. That said, however, researchers such as, Oxley, Lenne, and Corben, (2006) found noticeable cognitive and physical impairments in road crossing decisions in individuals with blood alcohol concentrations (BAC) over 0.05%. Despite the risks associated with drink walking, crash statistics indicate that most fatally and seriously injured pedestrians have a BAC greater than 0.05%, with 80% having a BAC over 0.15mg/ml (ATSB, 2001; Lang, et al., 2003). Analogous to the legal definition of drink driving, however, drink walking is defined herein, as it has been elsewhere (e.g., Lang et al., 2003) as walking in public with a BAC above 0.05mg/ml. Thus, from the outset it is to be noted that, while it has been long acknowledged that increasing BAC is associated with increased risk taking (Cohen, Dearnaley, and Hansel, 1958; Lubit and Russett, 1984) and, also, that drink walking with high BAC levels (e.g., $\geq 0.15\text{mg/ml}$) heightens one’s risk of being fatally injured in a crash, arguably, to the extent that the risk of (any) injury increases when one is intoxicated even at lower BAC levels (King

et al., 2009; Lang et al., 2003; Lenne, Corben, and Stephan, 2007), the current definition, with the objectivity it offers, is warranted.

Crash statistics indicate that drink walking encompasses a large range of behaviours, including standing, running or sleeping on a road or footpath (Austroads, 2004). According to Austroads (2004), the majority of drink walking fatalities occur when a pedestrian who is intoxicated is walking or lying on the road. Furthermore, in instances where a pedestrian who is intoxicated is walking on the road, the majority of collisions occur when the person who is drink walking is crossing a road (Austroads, 2004). In recent years, evidence suggests that the prevalence of drink walking and alcohol-related pedestrian crashes may be increasing or at least not matching the declines evidenced in relation to drinking and driving (Austroads, 2004; Holubowycz, 1995), and this tendency has occurred despite a range of interventions having being put in place to increase pedestrian safety. Such interventions have included regulation changes in the hospitality industry regarding the safe service of alcohol, through to the implementation of engineering/road-side measures, such as the installation of roadside barriers and pedestrian fencing. The placement of pedestrian signals at traffic lights in and around frequented drinking venues has also been promoted on the basis that these signals will simplify the drink walkers' task of crossing a road and, as such, improve the safety of intoxicated pedestrians (Austroads, 2004). However, 17% of pedestrian crashes have been reported as occurring at operating traffic lights suggesting that intoxicated pedestrians are more likely to walk against a pedestrian signal than sober pedestrians, with 13.5% of casualties occurring when the drink walker is crossing against the signal (Austroads, 2004; King et al., 2009; Wilson and Fang, 2000). Such evidence highlights that in order to reduce and prevent the number of intoxicated pedestrian fatalities and injuries, there is a need to investigate the factors which influence individuals to drink walk.

Currently, there is limited research evidence available regarding those psychosocial factors which underpin people's decisions to drink walk, specifically at locations where pedestrian signals are already in place and could be used to reduce one's risk of being involved in a road crash. As social drinking with friends may often precede drink walking and statistics suggest that a number of fatalities occur when an individual is drink walking with others, it is likely that psychosocial factors play an important role in an individual's decision to drink walk (Austroads, 2004). A number of studies into related behaviours including binge drinking (Johnston and White, 2003) and risky road crossing, (Zhou, Horrey and Yu, 2009), have found support for the role of social influence on the decision to engage in these behaviours. Therefore, as young individuals are overrepresented in drink walking fatalities and young persons spend a significant amount of time in social groups, there is a need to identify whether such factors also influence the decision to drink walk. It is also noted that a number of factors including level of intoxication, perceived risk, personality, previous/current drink walking behaviour, road geometry and field of view are also likely to influence drink walking intentions. However, for the purposes of this current study, the focus is upon two aspects relating to the potential influence of social groups; the extent to which one identifies with a group and the extent to which one conforms to the behaviours and values of a group. Thus, the current study draws upon Social Identity Theory/Self-Categorisation Theory in its conceptualisation of these constructs (Tajfel and Turner, 1969; Turner et al., 1987).

1.1 Group Identity

According to social identity theory, individuals define themselves as belonging to a social group and therefore align their behaviour to correspond to the norms and standards of that group (Terry and Hogg, 1996). This process occurs through categorisation, where the individual accentuates the similarities between the self and members of the in-group and

emphasises the dissimilarities between the self and the out-group on significant salient dimensions of behaviours and attitudes (Terry and Hogg, 1996). Through highlighting the disparity between the groups, categorisation favours the individual belonging to the in-group over the out-group (Terry and Hogg, 1996). Social identity theory asserts that the greater the group identification with an important reference group, the stronger the effect of group behaviour on intentions and behaviour (Terry and Hogg, 1996). Salient membership in specific social groups influences behaviour due to the identified group being conceived as 'behaviourally relevant' (Johnston and White, 2003, p.4). The importance of the social identity approach to influencing one's attitudes and behaviours has been supported by several studies including intentions to binge drink in a sample of Australian university students (Johnston and White, 2003).

Thus, these results suggest that when an individual perceives normative support from the in-group (that they strongly identify with) for a particular attitude or behaviour, they are likely to align their behaviour in accordance with this group (Terry and Hogg, 1996). As risky alcohol-related behaviours including drink walking and binge drinking are particularly prevalent in young persons (Johnston and White, 2003, 2004; Reavley, Jorm, McCann, and Lubman, 2011) and young individuals spend a significant amount of time in social groups, it is likely that the strength of identification with peers may also influence the decision to engage in drink walking (Austroads, 2004). Furthermore, young peoples' decisions to engage in drink walking may frequently occur in the context of their identity as a teenager or university student. Such decisions are often connected to membership of a certain social-group (Johnston and White, 2003). Therefore, there is evidence to suggest that group identity should be taken into account when exploring factors influencing pedestrians' intentions to drink walk.

1.2 Conformity

Conformity is the propensity or tendency to follow other individuals' behaviours, actions, values and ideas to avoid potential conflict with others (Zhou et al., 2009). In relation to the social identity theory, conformity to the behaviours of the in-group creates and enhances consensus and clarifies an individual's self-definition in terms of their group identity (Smith et al., 2007). Research has shown that the greater the cohesion between a group (such as a car of male peers), the greater the group pressure to conform in risky behaviours (Zimbardo and Leippe, 1991). In a recent study of young adolescents in China, which, given the behaviour of focus, is of particular relevance to the current study, Zhou et al. (2009) found that individuals reported stronger intentions to cross against a traffic signal when surrounding pedestrians were doing so, compared with a situation in which the other pedestrians were waiting for the green signal to cross (Zhou et al., 2009). Therefore, the tendency to follow the behaviour of others may be a significant factor which accounts for an individual's decision to engage in drink walking.

1.3 The Current Study

While research has shown that pedestrians are more likely to cross against a red man signal (i.e., the symbol denoting the instruction, "Don't Walk") when other pedestrians are doing so, no research to date has investigated whether intoxicated pedestrians will demonstrate the same tendency (Zhou et al., 2009). Furthermore, no research to date has assessed whether an individual's level of identification with other pedestrians (strangers or friends) influences the decision to drink walk. Therefore, the current study will employ a scenario-based approach using a 2 x 2 design (together with a control condition) to examine the psychosocial influences that impact upon young individuals' road-crossing decisions. More specifically, the scenarios will be used to investigate drink walking intentions when the individual is alone (control) or with other pedestrians (experimental scenarios) and, when

with others, whether these others are people they highly identify with or not (i.e., friends or strangers) and whether the other pedestrians are said to also cross against a red man signal (high conformity) or wait at the signal (low conformity).

1.3.1 Study hypotheses. The current study will investigate the following four hypotheses. First, comparing intentions between the control and experimental scenarios, Hypothesis 1 posits that, overall, individuals will report greater intentions to drink walk when in a group at a signalised intersection with a red man signal than when they are alone at a signalised intersection with a red man signal. In terms of the manipulated variables of conformity and group identity, Hypothesis 2 predicts that there will be a main effect of conformity such that, at a signalised intersection with a red man signal individuals will report greater intentions to drink walk when other pedestrians are crossing against a red man signal as opposed to waiting at the red man signal. Also, Hypothesis 3 predicts that there will be a main effect of group identity such that, at a signalised intersection with a red man signal, individuals will report greater intentions to drink walk when the other pedestrians crossing against a red man signal are people they highly identify with (i.e., friends) as opposed to people they do not identify with (i.e., strangers). The final hypothesis, Hypothesis 4 predicts that there will be an interaction between conformity and group identity, such that at a signalised intersection with a red man signal individuals will report greater intention to drink walk when in the presence of other pedestrians who they highly identify with (i.e., friends) and who are also crossing against the red man signal (i.e., high conformity).

2.0 Method

2.1 Participants

A total of 151 university students from various faculties and year levels from a large South East Queensland completed a self-report questionnaire. Participants were aged 17 to 30 years with the final sample having a mean age of 21.59 years ($SD = 3.35$ years). Of the 151

participants, 62 were male and 83 were female¹. Individuals were invited to participate by the first author who approached them directly on university campuses.

2.2 Design

The study was a scenario-based 2 x 2 repeated measures design. The manipulated independent variables were group identity with two levels of low identity (i.e. strangers) and high identity (i.e. friends) and conformity with two levels of high conformity (i.e. friends or strangers are crossing against the red man signal) and low conformity (i.e. friends or strangers are waiting at the red man signal). A control condition, where the participant was alone, was also included to examine whether the presence of others at the time of crossing influenced intentions to drink walk when in risky pedestrian crossing situations. The dependent variable was the participant's intention to drink walk in relation to each scenario. Table 1 presents a description of these scenarios and Figure 1 illustrates the manipulation of the independent variables in the scenarios.

Table 1 inserted about here

Figure 1 inserted about here

2.3 Procedure

Prior to conducting the study, ethical and health and safety clearance was applied for and granted. Participants were advised of the anonymous and voluntary nature of their participation. As this study was a repeated measures design, all participants first read over the control condition followed by the four experimental scenarios (see Table 1). Drink walking was defined according to the Target, Action, Context and Time (TACT) procedure

¹ Six participants did not specify their gender.

recommended by Ajzen (2006). In this study, participants were advised within the survey that drink walking was defined as walking (action) with a blood alcohol concentration above 0.05mg/ml (target) in public (context) in the next three months (time). The questionnaires were counterbalanced in terms of the order of the (experimental) scenarios. Counterbalancing via all possible orders (Shaughnessy, Zechmeister, and Zechmeister, 2006) was undertaken, although with a final sample size of $N = 151$, it is acknowledged that perfect counterbalancing was not achieved. This final sample size did result in 6 participants in each of the possible 24 scenarios with the subsequent 7 participants (over and above the required $N = 144$) each randomly assigned.

Following each scenario, participants provided their responses in relation to questions for each scenario including their intention to drink walk. In addition, prior to the presentation of the first scenario, participants were provided with the following instruction, “PLEASE NOTE: Although you may be answering the same questions a number of times, we are seeking your responses to these questions in relation to each specific scenario that we provide. As such, please be sure to read each scenario carefully before responding to the questions that follow”. This instruction featured in a separate text box, in bold and larger font than the survey questions and was intended to prepare participants for the fact that they would be answering similar questions repeatedly and that what was changing was the scenario that they would need to consider when responding to the questions.

2.4 Measures

All scales were measured on a seven-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*) and higher scores reflected stronger agreement and/or more of the construct. Two items were used to ensure the success of the desired manipulation of level of identification with other pedestrians (i.e., “*I would consider these people to be my closest friends that I spend time with*”) and level of conformity in the situation (i.e., “*I would follow*

what others were doing in this scenario”) in the four experimental conditions. Intention to drink walk was measured by a composite measure of 3 items (e.g., “*I intend to drink walk in the next three months*” and “*It is likely that I will drink walk in this situation*”). Across the scenarios (control and experimental), this scale was internally reliable with Cronbach alphas ranging from .72 to .79

3.0 Results

3.1 Manipulation check and descriptive findings

3.1.1 Manipulation check. To determine whether the study’s manipulation of the two independent variables (within the experimental scenarios) had been successful, a repeated measures MANOVA was conducted using the manipulation check items as the analyses’ dependent variables. The results demonstrated a significant effect of scenario condition, in terms of the level of group identity and conformity, $F(6,132) = 99.37, p < .001, \eta_p^2 = .819$. Univariate tests confirmed that the effect of scenario condition was significant for group identification, $F(3, 411) = 378.17, p < .001, \eta_p^2 = .734$ and conformity, $F(3, 411) = 88.75, p < .001, \eta_p^2 = .393$. Pairwise tests confirmed that for level of group identification, the two low identity conditions each significantly differed from the two high identity conditions, such that the low identity conditions had a lower score on group identity than the high identity conditions. Further, the low identity conditions did not significantly differ from each other, nor did the high identity conditions. In terms of level of conformity, pairwise comparisons revealed that all scenarios significantly differed from each other, with the exception of the two low conformity conditions. Although the two means of the high conformity conditions significantly differed from each other, the overall pattern of results in terms of mean scores were as expected, such that the low conformity conditions had a significantly lower score of conformity than the high conformity conditions (with the low conformity conditions not significantly differing from each other). While the means for the two high conformity

conditions did significantly differ from each other, as the means of both the high conformity conditions were significantly higher than the low conformity conditions, as expected, it was considered that the manipulation of level of conformity and group identity was successful across the experimental scenarios. Tables 2 and 3 illustrate the descriptive statistics for the group identity and conformity manipulation checks, respectively.

Table 2 inserted about here

Table 3 inserted about here

3.1.2 Descriptive statistics. Overall, the means of the scales indicated that, given the seven-point measurement scale, of 1 (*strongly disagree*) to 7 (*strongly agree*), the participants held neither a strong or weak intention to drink walk, ($M = 3.54$, $SD = 1.71$) (see Table 4 for descriptive statistics of intention scores for all study conditions).

Table 4 inserted about here

3.2 Hypothesis 1: Intentions to Drink Walk Between Control and Experimental Conditions

To determine whether drink walking intentions differed between the control and experimental scenarios, a series of one sample t tests were conducted comparing the mean intention score reported for the control scenario with the mean intention score from each of the four experimental conditions. Table 4 displays the descriptive statistics and t tests' results. As Table 4 indicates, drink walking intentions were highest in the control condition ($M = 3.66$, $SD = 1.64$) compared with all but, one of the experimental conditions, the HI/HC

condition ($M = 4.76$, $SD = 1.77$). The t test results indicated that intentions were significantly higher in the HI/HC condition than the control condition, $t(150) = 7.62$, $p < .001$; while intentions were significantly higher in the control condition than the HI/LC ($M = 2.67$, $SD = 1.60$) and the LI/LC ($M = 3.01$, $SD = 1.72$) conditions with no significant difference between the control and LI/HC ($M = 3.62$, $SD = 1.83$) conditions.

3.3 Hypotheses Two to Four: Difference Between Intentions Based on Level of Conformity and Identity (i.e., the experimental conditions only)

To determine whether drink walking intentions differed across the four experimental scenarios (in which level of conformity and group identity were manipulated), a 2×2 repeated measures MANOVA was conducted. The results revealed that there was a significant main effect of group identity, $F(1, 150) = 16.75$, $p < .001$, $\eta_p^2 = .10$ such that intentions to drink walk were significantly higher in the high identity (friends) condition ($M = 3.72$, $SE = .11$) than in the low identity (strangers) condition ($M = 3.32$, $SE = .13$). A significant main effect of conformity was also found, $F(1, 150) = 152.02$, $p < .001$, $\eta_p^2 = .50$, such that intentions to drink walk were significantly higher in the high conformity (other pedestrians crossing against red man signal) condition ($M = 4.19$, $SE = .13$) than in the low conformity (other pedestrians waiting at the red man signal) condition ($M = 2.84$, $SE = .12$). Further, there was a significant interaction between the identity and conformity variables, $F(1, 150) = 56.53$, $p < .001$, $\eta_p^2 = .27$. As shown in Table 4, intention to drink walk was significantly higher in the HI/HC condition ($M = 4.76$, $SD = 1.77$) followed by the LI/HC ($M = 3.62$, $SD = 1.83$), LI/LC ($M = 3.01$, $SD = 1.72$) and HI/LC ($M = 2.67$, $SD = 1.60$) conditions. Pairwise comparisons revealed that intention scores significantly differed across all of the scenarios, with the only exception being that the two conditions of low conformity (i.e., LI/LC and HI/LC) did not significantly differ from each other.

4.0 Discussion

Given the evidence that identifies heightened risk for intoxicated pedestrians when walking on the road and/or crossing to the other side (Austroads, 2004), the current research investigated the motivational determinants that lead young individuals to drink walk when at signalised pedestrian crossings. Specifically, the main aim of this study was to explore the psychosocial factors influencing young persons' (17 to 30 years) intentions to drink walk and cross against a red man signal across four experimental scenarios (and a control scenario) that differed in terms of conformity and group identity. Overall, with the exception of the first hypothesis where limited support was found, support was found for all other hypotheses.

The first hypothesis posited that individuals' drink walking intentions would be higher when an individual was walking with others than when alone. As such, intentions for each of the experimental conditions in which others (irrespective of who those others were) were compared with the intentions to drink walk that individuals reported in relation to the control condition (when alone). The results indicated that only one comparison supported the hypothesis. Specifically, individuals reported greater intention to drink walk in relation to the high identity/high conformity (HI/HC) condition than when walking alone. In contrast, for the remaining three experimental conditions, individuals reported greater intentions to drink walk when alone (control) than when in the presence of others. Furthermore, two of these comparisons were statistically significant, namely, the high identity/low conformity (HI/LC) and the low identity/low conformity condition each were associated with individuals reporting less intention to drink walk (when with others) than when alone (the control condition); while the difference between the control and low identity/high conformity condition (LI/HC) was not significant. These findings suggest that individuals' intention to drink walk appears to be particularly influenced by the presence of other pedestrians only in situations where others are already enacting the behaviour which the individual also wants to do (i.e., cross the road irrespective of whether there is a red or green signal displayed) and,

thus, the individual conforms with the behaviour of others. This tendency is most likely to occur in instances when an individual is accompanied by others whom the individual identifies highly with (i.e., is with friends). While, on the surface this finding may be encouraging to the extent that it appears individuals are not being easily and readily influenced by the actions of others around them to engage in risky behaviours (that is, they are generally less likely to intend to drink walk and cross against a red signal when in the presence of others than when alone), the concern is that individuals tend to have limited concern about their own safety. This result parallels some findings from the road safety literature that suggest, in some situations, individuals are more likely to report an intention to engage in a risky behaviour, such as speeding, when driving in a vehicle on their own than when in the presence of others/passengers (Fleiter, Lennon, and Watson, 2010). This finding suggests that individuals may need to be made more aware of the dangers (i.e., the aversive consequences) of drink walking and crossing against the red signal at a signalised crossing.

Consistent with this suggestion, evidence from the mass media campaign literature suggests that when baseline compliance with, and awareness of, a particular (desired safety) behaviour is low within the community, negative-based appeals (e.g., fear-based appeals that depict the aversive consequences that result from the engagement in a risky behaviour), may be a more effective education and persuasive message approach than other types of approaches (Elliott, 1993). To the extent that public awareness of the drink walking problem may be relatively low in the community compared with, for instance, the acknowledgement of risks associated with drink driving (ATSB, 2001), an important first step may be to raise awareness of the dangers of the behaviour.

Further, when considering also the finding in the current study that the lowest mean intention score was associated with the condition in which the individual was said to be with friends (those they highly identify with) and such friends were choosing not to cross against

the red signal suggests, collectively, that there may be value in promoting the message that individuals should not only think about the consequences of their (risky road crossing) behaviour on themselves but also others. More specifically, public education or mass media messages could encourage individuals to consider the extent to which their behaviour may not only adversely affect their own safety but, also, how their behaviour may influence those whom they identify with and, presumably, care about; akin, to looking out for each other and taking care of each other as one would want others to take care of them.

In terms of Hypotheses 2 and 3, the results supported predictions with significant main effects found for both conformity and identity. That is, individuals reported being more likely to drink walk under conditions of high conformity (i.e., when others are also crossing against the red man signal) than low conformity (i.e., others are waiting for the green man signal but individual is said to cross anyway) as well as under conditions of high group identity (i.e., friends as pedestrians) as opposed to low identity (i.e., strangers as pedestrians). In terms of the main effect of conformity, the results of this study are consistent with the findings of Zhou et al. (2009) and Zhou and Horrey (2010), who examined road-crossing intentions in low and high conformity conditions. While the findings in relation to identity are consistent with theoretical (i.e. Social Identity and Self-Categorisation theories) and empirical evidence (e.g., Terry and Hogg, 1996) that suggests individuals are more likely to perform a behaviour when others they identify strongly with are also engaging in the behaviour.

In relation to Hypothesis 4, the results supported predictions in that a significant interaction was found between identity and conformity such that individuals' intentions to drink walk were highest overall in the HI/HC condition when an individual was said to be walking with a group that they highly identify with (friends) and their friends were also drink walking, crossing against the red man signal.

Overall, these results suggest that young individuals may be especially likely to drink walk and cross against a red signal when others are doing so, and they are especially likely to engage in such behaviour when the others are friends with whom they identify highly with. When faced with such a situation, individuals may feel a pressure to change their behaviour to comply with such a desirable social group, perhaps to avoid social embarrassment or disapproval from friends (Scott-Parker et al., 2009). High conformity situations may also reduce uncertainty of how to behave (Smith et al., 2007). Thus, it may be beneficial for preventive interventions aimed at reducing drink walking behaviour to promote resilience to peer influence and reinforce the negative consequences associated with following the behaviour of other pedestrians who are drink walking and crossing against a red signal. In addition, interventions may be effective if they were to emphasise health-promoting behaviours amongst friends and the importance of communication and looking out for intoxicated friends during social events and nights out (e.g., Buckley, Sheehan, and Shochet, 2010).

4.1 Strengths, Limitations, and Future Research Suggestions

The current study has several strengths. In the investigation of the psychosocial factors underpinning young people's decisions to drink walk specifically at pedestrian signals, the current study provided important insight to the understanding of why individuals engage in this risky behaviour and the effect of social influence factors in relation to specified scenarios. In adopting this approach, the study was able to investigate factors that influence behaviour within given contexts and, thus, likely enhanced our explanation of the intentions to drink walk by limiting the effect of extraneous factors (see Ajzen, 1991). Currently, there is limited evidence relating to the factors which influence individuals to engage in risky behaviours (such as crossing against a red man signal) when drink walking and, as such, the current study has addressed an omission in contemporary literature. Furthermore, by

undertaking this investigation, some insight may be offered towards the design of future public education and mass media initiatives which aim to reduce, and ultimately prevent, individuals' engagement in this high risk behaviour.

The study's strengths notwithstanding, there were also some limitations of the study which need to be acknowledged. First, the study relied on self-report data, which may have biased results through participants providing socially desirable responses (Armitage and Conner, 2001). A sampling error may have also occurred due to the relatively small sample demographic of university students, who are likely to have higher education levels and socio-economic status. Thus, the findings may not be representative nor generalisable beyond this population. The study also predicted intention to drink walk and cross against a red man signal, rather than actual behaviour. Although theoretical and empirical evidence supports the link between intention and behaviour (see the Theory of Planned Behaviour; Ajzen, 1991), it is acknowledged that other factors may influence actual behavioural performance (Holland and Hill, 2007). Future research could consider adopting a prospective design to examine the theoretically expected relationship between drink walking intentions and actual behaviour. Future research may also explore the extent to which individuals engage in drink walking in high risk pedestrian crossing situations at differing levels of intoxication and impairment (possibly in a simulated environment). It is acknowledged, however, that there are likely to be ethical, practical, and safety related issues associated with the ability to assess actual drink walking behaviour and, as such, it is likely that self-reported measures (of behaviour) may still be required.

Additionally, the study relied upon the manipulation of the study's key independent variables via the information provided within a range of text-based scenarios and, as such, required individuals (given the repeated measures nature of the design) to consider their responses each time in accordance with such changing/manipulated information. Future

research may benefit from an approach which involves the manipulation of similar variables via more tangible means, such as in a simulated environment or within a randomized design in which all participants are exposed to only one of the scenarios (i.e., between groups design). Similarly, while every effort was undertaken to ensure that participants were aware of the definition of drink walking adopted within the study and upon which they were intended to provide their responses to the survey questions, it is difficult to determine the true extent to which participants understood and did draw upon this definition when providing their responses.

Similar studies are also needed to investigate the psychological factors influencing drink walking behaviour at pedestrian signals in order to both replicate as well as extend upon the current study's findings. It is also suggested that future research could assess intentions to drink walk at differing road and traffic conditions, such as zebra crossings and railway crossings. Finally, it is acknowledged that the present study focused upon specific aspects of social influence (group identity and conformity) and to the extent that our findings indicate that unexplained variance in drink walking intentions remains, it is acknowledged that other social factors unexplored and unmeasured in the current research are likely to be influencing behavioural intentions. For instance, derived from the psychiatric literature, the concept of behavioural contagion suggests that attitudes and behaviours can spread from person to person (Jones & Jones, 1994, 1995). In the context of risky antisocial behaviours, such as drink walking, contagion would suggest that an individual's engagement in the behaviour is influenced by their witnessing of others performing the behaviour as well as pressure from these others to perform the behaviour (Jones & Jones, 1994, 1995). As such, given the relatively limited evidence available regarding the predictors of drink walking intentions, there would be value in future research examining the extent that other social factors, such as behavioural contagion, influence these intentions. Such research is needed to

gauge a greater understanding of social-psychological factors underlying intentions and which may be used to inform theory-based, targeted interventions to reduce drink walking.

4.2 Summary and Conclusions

Limited evidence is available presently regarding the range of psychological factors underlying young people's decisions to drink walk generally, and, more specifically in relation to drink walking at pedestrian signals. The current study offers some insight into this issue and in doing so provides some guidance in terms of the development of preventive measures, including public education and mass media campaigns, aimed at reducing drink walking and improving the safety of intoxicated pedestrians. Importantly, the study highlights the need to raise awareness about the dangers of drink walking behaviour amongst young individuals.

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Table 1

Description of Scenarios

Scenario	Description
Factors kept constant in all scenarios	It is after midnight on a Saturday night and you are drink walking from a city nightclub/hotel You reach the signalised crossing and the signal indicates a steady Red Man (don't walk). ... You cross anyway.
Control Condition	It is after midnight on a Saturday night and you are drink walking from a city nightclub/hotel <u>alone</u> . You find yourself on the opposite side of the road of the way you wish to go. You reach the signalised crossing and you are alone and there are no other pedestrians. <u>The signal indicates a steady Red Man (don't walk)</u> . You cross anyway.
High identity, Low conformity (HI/LC)	It is after midnight on a Saturday night and you are drink walking from a city nightclub/hotel <u>with your friends</u> . You find yourself on the opposite side of the road of the way you wish to go. You reach the signalised crossing and the signal indicates a steady Red Man (don't walk). <u>All of your friends are waiting for the Green Man signal to cross</u> . You cross anyway.
High identity, High conformity (HI/HC)	It is after midnight on a Saturday night and you are drink walking from a city nightclub/hotel <u>with your friends</u> . You find yourself on the opposite side of the road of the way you wish to go. You reach the signalised crossing and the signal indicates a steady Red Man (don't walk). <u>All of your friends cross the road, against the Red Man signal</u> . You cross anyway.
Low identity, Low conformity (LI/LC)	It is after midnight on a Saturday night and you are drink walking from a city nightclub/hotel <u>alone</u> . You find yourself on the opposite side of the road of the way you wish to go. You reach the signalised crossing and the signal indicates a steady Red Man (don't walk). <u>All other pedestrians with you are strangers who you don't know and are waiting for the Green Man signal to cross</u> . You cross anyway.
Low identity, High conformity (LI/HC)	It is after midnight on a Saturday night and you are drink walking from a city nightclub/hotel <u>alone</u> . You find yourself on the opposite side of the road of the way you wish to go. You reach the signalised crossing and the signal indicates a steady Red Man (don't walk). <u>All other pedestrians with you are strangers who you don't know and cross the road, against the Red Man signal</u> . You cross anyway.

Figure 1

Manipulation of Independent Variables (Conformity, Group Identity) in Scenarios

		Conformity	
		Low	High
Group Identity	High	<p>High Identity/Low Conformity (HI/LC)</p> <p><i>Friends are waiting at the red man signal. You cross anyway.</i></p>	<p>High Identity/High Conformity (HI/HC)</p> <p><i>Friends are crossing against red man signal. You cross anyway.</i></p>
	Low	<p>Low Identity/Low Conformity (LI/LC)</p> <p><i>Strangers are waiting at the red man signal. You cross anyway</i></p>	<p>Low Identity/High Conformity (LI/HC)</p> <p><i>Strangers are crossing against red man signal. You cross anyway.</i></p>

Table 2

Descriptive Statistics of Group Identity Manipulation Check Item

Scenario	Mean	SD
HI/LC	5.28	1.75
HI/HC	5.32	1.70
LI/ LC	1.87	.995
LI/ HC	1.83	.986

Note: HI/LC = High identity/low conformity condition; HI/HC = High identity/low conformity condition; LI/LC = Low identity/low conformity condition; and LI/HC = Low identity/high conformity condition.

Table 3

Descriptive Statistics of Conformity Manipulation Check Item

Scenario	Mean	SD
HI/LC	2.30	1.80
HI/HC	4.71	2.00
LI/LC	2.27	1.81
LI/HC	4.83	2.08

Note: HI/LC = High identity/low conformity condition; HI/HC = High identity/low conformity condition; LI/LC = Low identity/low conformity condition; and LI/HC = Low identity/high conformity condition.

Table 4

Descriptive statistics and one sample t test results of comparisons of drink walking intention scores between the control and each of the experimental conditions

Condition^a	N	M^b	SD	t	df	sig	Mean difference	Lower 95% CI	Upper 95% CI
Control	151	3.66	1.64						
HI/LC	151	2.67	1.60	-7.61	150	.000	-0.99	-1.25	-0.73
HI/HC	151	4.76	1.77	7.62	150	.000	1.10	0.81	1.38
LI/LC	151	3.01	1.72	-4.68	150	.000	-0.65	-0.93	-0.38
LI/HC	151	3.62	1.83	-0.25	150	.801	-0.04	-0.33	0.26

Note: ^aHI/LC = High identity/low conformity condition; HI/HC = High identity/low conformity condition; LI/LC = Low identity/low conformity condition; and LI/HC = Low identity/high conformity condition. ^b Scored on a scale of 1-7 where higher scores indicate greater intention to drink walk.