

# Critical Beliefs Underlying Young Australian Males' Intentions to Engage in Drinking and Swimming

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## Abstract

This study examined key targets for interventions aimed at reducing drinking and swimming among young males, an at-risk group for drowning. Two-hundred and eleven Australian males aged 18 to 34 years completed a Theory of Planned Behavior belief-based questionnaire either online or paper based. Behavioral beliefs of “be more relaxed” and “having fun,” normative beliefs of “friends/mates” and “parents,” and the control belief of “presence of other people” were revealed as independent predictors of intentions to drink and swim. These identified beliefs can be used to inform interventions to challenge young males’ alcohol use in, on, and around water.

## Keywords

swimming, alcohol use, theory of planned behavior, beliefs, young men

## Introduction

Drowning fatalities continue to be a serious issue worldwide with an estimated 388,000 people dying each year from this largely preventable cause (World Health Organization, 2004). In Australia, in 2011, drowning fatalities increased for the third year in a row (Royal Life Saving Society, 2011). More specifically, between 1st July 2010 and 30th June 2011, drowning claimed the lives of 315 people, which represents an 11% increase on the previous 5-year average (Royal Life Saving Society, 2011). Drowning deaths for men aged 18 to 34 years, in particular, have almost doubled in the past 3 years (Royal Life Saving Society, 2011), and this cohort of the population is also identified as being a high risk group in other developed countries (Lifesaving Society Canada, 2012). Alcohol and drugs are often present among young males, and particularly for males aged 18 to 34 years, alcohol is considered to be a significant risk factor for drowning (Royal Life Saving Society, 2011). There is mounting evidence confirming the risk between alcohol use and drowning during recreational aquatic activities (Driscoll, Harrison, & Steenkamp, 2003). Data on unintentional drowning deaths in Australia found that within the 5-year period investigated, alcohol was involved in 21.6% of all drowning deaths (Franklin, Scarr, & Pearn, 2010). Each year it is estimated that at least 20% of all adult drowning deaths are attributed to alcohol consumption, with this figure increasing to 41% in the younger population groups (Royal Life Saving Association, 2011). If the prevalence of drinking and swimming fatalities in young men has to decrease, a clear,

theoretically based understanding of males’ decision making in this context is needed.

The Theory of Planned Behavior (TPB; Ajzen, 1991) is one of the most influential models in explaining people’s decision making for a range of health and social behaviors (Armitage & Conner, 2001) and, thus, may be a useful model to adopt to understand this specific risk-taking behavior of drinking and swimming. The TPB specifies intentions as the proximal determinant of behavior, with intentions predicted by attitude (positive/negative evaluations of the behavior), subjective norm (perceived pressure from others to perform the behavior), and perceived behavioral control (PBC; perceived ease/difficulty of performing the behavior, also believed to influence behavior directly; Ajzen, 1991). Attitude, subjective norm, and PBC are informed by underlying behavioral beliefs (costs and benefits), normative beliefs (others’ approval/disapproval), and control beliefs (barriers and motivators), respectively (Ajzen, 1991). Measures of such underlying beliefs have increased our understanding of people’s behavior in a range of risk taking domains such as ecstasy use (Conner, Sherlock, & Orbell, 1998), safer sex (White, Terry, & Hogg, 1994), complying with speed limits (Elliott, Armitage, & Baughan, 2005), and binge drinking

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behavior (French & Cooke, 2012). No previous study has, however, documented the beliefs underlying males' intentions to engage in drinking and swimming. Ajzen (1991) suggests that belief elicitation should occur for each new behavior or target population being investigated as the underlying reasons as to why people hold certain attitudes, perceptions of social pressure, and behavioral control may differ according to the specific behavior or population being targeted. Taking this targeted approach to identifying the beliefs of young males, an at-risk group of drinking and swimming-related deaths, in this context is important given that drowning fatalities are on the rise (Royal Life Saving Society, 2011).

Using the TPB as a theoretical framework, we aimed to investigate the critical beliefs that underlie males' intentions to drink and swim. First, we expected that significant correlations would be observed between the behavioral, normative, and control beliefs for drinking and swimming. Second, we expected that some of the significant key beliefs would independently predict males' intentions. Finally, in an exploratory manner, we examined the relative number of males who fully and strongly accepted each of these beliefs to determine the usefulness of the belief for subsequent intervention strategies.

## Method

### Participants

The sample comprised 211 Australian males ranging in age from 18 to 34 years ( $M$  age = 23.93,  $SD$  = 4.01). Participants were included in the study if they met the age requirement and engaged in alcohol use. The second author recruited participants via convenience sampling methods using three main recruitment strategies: online advertising (e.g., Facebook), face-to-face (e.g., university campuses, public beaches), and snowball. Participants were given the option to enter into a prize draw, to win one of five AUD\$20 department store gift cards or, if appropriate, receive course credit.

The majority of participants reported living in Queensland ( $n$  = 201; 95.3%), came from an English-speaking background ( $n$  = 190, 90.5%), held a paying job ( $n$  = 175, 82.9%), and were not suffering from an acute/chronic medical condition ( $n$  = 202, 95.7%) or taking medication that may impair judgment ( $n$  = 209, 99.1%). Almost half of the participants were in a partnered relationship ( $n$  = 92, 44.3%) and did not have children ( $n$  = 186, 89%). Two items measuring the typical quantity of standard drinks consumed in a single occasion and the frequency of heavy drinking episodes taken from the psychometrically sound (Reinert & Allen, 2007) Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monterio, 2001) indicated that the majority of participants ( $n$  = 184, 94.8%), when consuming alcohol, did so at hazardous levels. In addition, 45% of the men indicated they engaged to a greater than small extent in drinking and swimming (scored  $\geq 2$  on a 7-point

scale), measured with a single item assessing participants' engagement in drinking and swimming in the previous 6 months ("In the past 6 months, to what extent did you drink and swim," scored a *small extent* [1] to a *large extent* [7]).

### Measures

**Target behavior.** Consistent with Ajzen's (1991), the target behavior was defined as *drinking and swimming in the next 6 months*. Drinking was operationalized as having a blood alcohol concentration (BAC) of more than 0.05. This definition was adopted in line with drunk walking (Haque et al., 2012) and drunk driving research (Rivis, Abraham, & Snook, 2011), and research that indicates having a BAC of more than 0.05 impairs judgment and performance ability (Howat, Sleet, & Smith, 1991). To assist participants with this definition, a standard drink chart was presented with accompanied information referring to amount of alcohol which can be consumed to remain under 0.05. Swimming was operationalized as partaking in activities explicitly related to water and undertaken for fun, pleasure, or amateur sport. Boating and personal water crafts were excluded as operation of such vehicles while intoxicated is illegal and may carry additional social undesirability affecting self-reported intentions. The behaviors applied to open water ways, such as rivers, creeks, streams, lakes, oceans, and harbors, as open water ways have been identified as high-risk locations with the largest number of drowning deaths (Royal Life Saving Society, 2011). Accordingly, public and private swimming pools were excluded. The operationalization of swimming behavior was guided by Driscoll et al.'s (2003) definition of recreational aquatic activities. These definitions were used consistently in all waves of data.

### Elicitation Pilot Study

Following guidelines outlined by Ajzen (1991), an elicitation pilot study ( $n$  = 20;  $M$  age = 23.95,  $SD$  = 3.30) was conducted to identify salient behavioral, normative, and control beliefs concerning drinking and swimming. The pilot questionnaire comprised open-ended question as outlined by Fishbein and Ajzen (1975). Thematic content analysis was undertaken to identify the most common responses to each of the TPB belief-based questions and formed the beliefs to be assessed in the current study (Joffe & Yardley, 2004).

### Main Questionnaire

The TPB constructs were measured in accordance with standard TPB procedures (Ajzen, 1991). To maximize the congruence between the prediction and criterion variables, the TPB variables were measured at the same level specified and constructed in line with TPB recommendations (Ajzen, 1991).

**Intention.** Five items assessed the strength of intention to perform the target behavior (e.g., I intend to drink and swim,

scored *strongly disagree* [1] to *strongly agree* [7]). The measure was reliable with an alpha coefficient of .96.

**Behavioral beliefs.** Behavioral beliefs were assessed by the eight single-item salient behavioral beliefs derived from the pilot study. Participants were asked to indicate how likely the five costs (e.g., have impaired swimming ability) and the three benefits (e.g., be more social) would result if they engaged in drinking and swimming in the next 6 months. Responses ranged from *extremely unlikely* (1) to *extremely likely* (7).

**Normative beliefs.** Normative beliefs were assessed by the seven single-item specific referents identified in the elicitation study. Participants were asked to rate how likely the seven referents (e.g., partner/girlfriend, parents) would approve of them drinking and swimming in the next 6 months. Responses ranged from *extremely unlikely* (1) to *extremely likely* (7).

**Control beliefs.** Control beliefs were assessed by the three single-item facilitators (e.g., presence of other people) and three single-item inhibitors (e.g., bad water conditions) derived from the elicitation study. Participants rated how likely it was that these factors would prevent them from drinking and swimming in the next 6 months, and responses ranged from *strongly disagree* (1) to *strongly agree* (7).

## Design and Procedure

Ethical clearance was granted by the University Human Research Ethics Committee. A cross-sectional correlational design was adopted to investigate the ability of the TPB and additional variables to predict males' intentions to drink and swim. The study involved the completion of a self-report questionnaire assessing the TPB standard and belief-based constructs and measures of group norm, anticipated regret, and risk perceptions either online ( $n = 77$ , 36.5%) or paper-based ( $n = 134$ , 63.5%). This study focused on the belief-based items in predicting males' drinking and swimming intentions to highlight key targets for interventions to combat this risk-taking behavior (Fishbein, von Haeften, & Appleyard, 2001). Online findings compared with traditional pen-and-paper data have been shown to be equivocal (Lewis, Watson, & White, 2009). In the current study, bivariate analyses with Bonferroni adjustment (to avoid chance capitalization) of the study's variables across the methods of questionnaire delivery reveal no substantive differences.

## Data Analysis

To determine the critical beliefs that guide males' intention to drink and swim, guidelines as specified by von Haeften, Fishbein, Kasprzyk, and Montano (2001) were followed. First, to identify the beliefs which are significantly correlated with males' intentions, the Pearson product-moment

**Table 1.** Means and Standard Deviations of Individual Behavioral and Normative Beliefs, and Correlations With Intention.

Beliefs	M	SD	r
<b>Behavioral beliefs</b>			
<b>Benefits</b>			
Be more social	3.83	1.99	.49***
Feel more relaxed	4.17	1.89	.55***
Having fun	5.17	1.86	.60***
<b>Costs</b>			
Increased chance of injury/accidents	3.53	1.77	.24***
Increased chance of drowning	3.92	1.91	.30***
Increased risk taking behavior	3.59	1.64	.05
Have impaired swimming ability	4.80	1.80	-.03
Need to be rescued	4.05	1.80	.23***
<b>Normative beliefs</b>			
Partner/girlfriend	2.68	1.67	.56***
Parents	2.04	1.39	.49***
Siblings	2.90	1.64	.56***
Friends/mates	4.11	1.83	.68***
Emergency services personnel	1.38	.88	.24***
Lifesaving associations	1.34	.84	.24***
Police	1.36	.91	.26***
<b>Control beliefs</b>			
Bad weather conditions	5.56	1.72	-.11
Bad water condition	5.91	1.50	-.04
Others around me drinking	3.53	1.74	-.37***
Presence of other people	3.77	1.62	-.38***
Presence of authority figures	5.05	1.91	-.37***
Presence of danger/warning signs	5.51	1.74	-.09
Level of intoxication	5.31	1.80	-.25***
Easy access to alcohol	3.98	1.79	-.25***

\*\*\* $p < .001$ .

correlation matrix was analyzed. Second, to identify the key beliefs which make independent, significant contributions to intention within each belief-based measure (e.g., behavioral, normative, and control beliefs), significant beliefs are entered in a stepwise multiple regression analysis. Third, to identify critical beliefs, all key beliefs, which made an independent significant contribution to the prediction of intentions, were entered into a final regression. Last, to identify those critical beliefs for resultant interventions, in an exploratory analysis, the principles of Hornik and Woolf (1999) were applied, which suggests that for effective intervention programs there should be a relative number of individuals who do not already hold the belief. Therefore, as a final step, critical beliefs were examined to determine the percentage of males who fully and strongly accept the belief.

## Results

### Critical Beliefs Underlying Intention

As shown in Table 1, bivariate correlations revealed that six of the eight behavioral beliefs, all of the normative beliefs,

**Table 2.** Summary of the Multiple Regression Analyses Identifying Critical Belief-Based Targets for Males' Intentions to Drink and Swim.

	B	$\beta$	95% CI	% fully accepting the belief <sup>a</sup>	% strongly accepting the belief <sup>b</sup>	Both
<b>Behavioral beliefs</b>						
Be more relaxed	.19	.19**	[.07, .32]	18	10.2	28.2
Having fun	.17	.17*	[.02, .31]	26.6	27.5	54.1
<b>Normative beliefs</b>						
Friends	.33	.33***	[.19, .47]	16.6	8.5	25.1
Parents	.27	.20***	[.13, .42]	.9	1.9	2.8
<b>Control beliefs</b>						
Presence of other people	-.13	-.11*	[-.25, -.01]	7.7	9.1	16.8
$R^2$				.57		
F				51.23***		

<sup>a</sup>Scale measured on a 7-point scale (1 = *extremely unlikely* to 7 = *extremely likely*), with a score of 6 indicating strongly accepting the belief and a score of 7 indicating fully accepting the belief.

<sup>b</sup>Scale measured on a 7-point scale (1 = *extremely unlikely* to 7 = *extremely likely*) with a score of 6 indicating strongly accepting the belief and a score of 7 indicating fully accepting the belief.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

and five of the eight control beliefs were significantly correlated with intention ( $r = .23$  to  $.68$ ). Multiple regression analysis on the significant behavioral beliefs revealed “having fun” ( $\beta = .41$ ), “feel more relaxed” ( $\beta = .26$ ), and “increased chance of injury/accidents” ( $\beta = .11$ ), as significant predictors of intention. Multiple regression analysis on the significant normative beliefs revealed “friends/mates” ( $\beta = .49$ ), “partner/girlfriend” ( $\beta = .18$ ), and “parents” ( $\beta = .16$ ) as significant predictors of intention. Multiple regression analysis on the significant control beliefs revealed “others around me drinking” ( $\beta = -.19$ ), “presence of other people” ( $\beta = -.16$ ), and “presence of authority figures” ( $\beta = -.22$ ), as significant predictors of intention.

To identify critical beliefs, the nine significant individual belief predictors mentioned above were entered into a final regression analysis. Five critical beliefs, “feel more relaxed,” “having fun,” “friends/mates,” “parents,” and “presence of other people,” were identified as significant independent predictors of intention. Of these critical beliefs, there were a large percentage of males who did not already fully or strongly accept these beliefs, refer to Table 2. The final model explained 57% (adjusted  $R^2 = .56$ ) of the variance in intentions to drink and swim,  $F(5, 192) = 51.23, p < .001$ .

## Discussion

The current study aimed to investigate using a TPB belief-based approach the critical beliefs that underlie males' intentions to drink and swim; an investigation not yet undertaken systematically in this at-risk group. Support was provided for underlying beliefs guiding males' decisions in this context in that various behavioral, normative, and controls beliefs were identified as making an independent contribution to intention. The findings of this study support that of previous research, where the role of beliefs in guiding people's decisions have been noted in the prediction of general

health-related behaviors (e.g., Armitage & Conner, 2001) as well as in health risk behaviors, such as binge drinking (French & Cooke, 2012; Johnston & White, 2003) and ecstasy use (Conner et al., 1998).

The results of the current study provide the basis for the beliefs to target in resultant intervention work aimed at combating young males' drinking and swimming behavior. First, in examining the behavioral beliefs suggests that males focus on their evaluations of the outcomes of engaging in drinking and swimming when forming an intention to do so. Specifically, males focus on whether or not they believe that drinking and swimming will result in them feeling more relaxed and having fun. Moreover, 54% of males endorsed fully or strongly as accepting the belief that drinking and swimming would be fun. Thus, for young males, the social context in which they are engaged is important in forming an intention to undertake such a risky behavior of drinking and swimming. These findings have important implications for resultant interventions to discourage such behaviors and highlight in particular the need to promote the not so fun side of drinking and swimming.

Although more behavioral disadvantages compared with advantages were included within the study (as a result of pilot testing), only positive behavioral outcomes seem to guide males' intentions to drink and swim; revealing none of the beliefs underlying perceptions of risk as being influential in this context. This finding could suggest that participants did not perceive that drinking and swimming is a risky behavior that may incur negative consequences, similar to previous findings on mobile phone use while driving (White, Hyde, Walsh, & Watson, 2010). It could also be the case that these males were inaccurate in estimating their beliefs about the negative consequences of drinking and swimming. Previous results have found men to be particularly inaccurate in their risk perceptions, by overestimating their ability and underestimating the risk involved regarding aquatic activity

(McCool, Ameratunga, Moran, & Robinson, 2009). In addition, the sample in this study comprised heavy drinkers, and generally, heavy drinkers perceive more positive and less negative outcomes from alcohol use than light drinkers (Wiers, van Woerden, Smulders, & de Jong, 2002).

The results revealed also important information on normative beliefs indicating further that not only is the social context important to consider but the social pressure from important others is an important area which can be targeted to reduce men's drinking and swimming behaviors. The findings suggest that it is closer (e.g., friends, parents), rather than more distant people (e.g., police), who are most influential on males' intentions to drink and swim. The results suggest that men who feel that their friends and parents think that they should drink and swim are more likely to form an intention to do so—a finding consistent with normative influences identified in risky drinking domains (Johnson & White, 2004). The influence of peers and friends on decisions to use alcohol has been consistently supported in the literature (Marcoux & Shope, 1997), with the men in this study perceiving that their friends/mates moderately approved of the behavior ( $M = 4.11$ ,  $SD = 1.83$ ). Accordingly, the perceived social pressure from friends/mates are important to consider in the context of young males' drinking and swimming, and, as indicated by the percentage of men who hold this belief, the belief does not appear to be salient and, thus, may be an effective strategy to challenge. In addition, the results suggest that the more men feel that their parents approve of the behavior, the more pressure they feel to drink and swim. Although revealed as a critical belief, with parental approval positively correlated with intention, the mean indicated that perceived levels of approval were low ( $M = 2.04$ ,  $SD = 1.38$ ), with very minimal participants (2.8%) strongly or fully accepting the belief that parents approve of such a risky behavior. Therefore, although parents may exert influence over intention to drink and swim, the majority view parents as non-approving of the behavior and, thus, targeting parents' disapproval rather than their approval may be an effective strategy for challenging males' intentions to drink and swim.

Finally, inspection of the control beliefs revealed the belief of the presence of other people as a significant independent predictor of males' intention to drink and swim. Specifically, the less likely other people are perceived to be present when one engages in drinking and swimming the less likely one will intend to do so. The finding concurs with previous research that suggests men are more likely to engage in risk-taking behaviors when others are present (Varela & Pritchard, 2011). This belief may be rationalized on the basis that in the event that something goes wrong, other people will be there to help. To combat this belief and to reduce the incidence of males drinking and swimming, it may be useful for resultant interventions to highlight the classic bystander effect (Fischer et al., 2011; Latane & Darley, 1970), which

states that in an emergency people are less likely to help when they are with others.

Although the current study has a number of strengths including the examination of an at-risk population for drowning, having a relatively large representative sample, and using a well-established theoretical approach to identify critical drinking and swimming beliefs, the current study also has a number of limitations. First, the sample predominately came from an English-speaking background and the findings, therefore, may not be generalized to other ethnic communities. Previous research has indicated that Caucasians drink more than other races/nationalities (Windle, 2003), which could in part explain the high rates of hazardous drinking practices indicated within the sample. Thus, future research is needed to confirm the study's findings with individuals from a wide range of ethnic backgrounds. Furthermore, the use of self-report measures, which tend to be susceptible to social desirability bias, may have led to an under-reporting of socially undesirable behaviors (Davis, Thake, & Vilhena, 2010). However, the TPB has been shown to be a good predictor of both actual and self-reported behavior (Armitage & Conner, 2001) and given the difficulty of accurate objective measures within the current context, self-report measures provide a practical alternative. The study also examined intentions only without explicitly examining actual drinking and swimming behavior. Although due to the timing of data collection being conducted over winter, and given the target behavior is not one which is expected to frequently occur especially in the colder season, intentions have been shown to be the strongest predictor of subsequent behavior explaining on average 27% of the variance (Armitage & Conner, 2001). However, further examination of the relationship between the TPB constructs and behavioral performance may allow for a more comprehensive understanding of males' drinking and swimming participation. In addition, the drinking behavior in the current study was operationalized as having a BAC of more than 0.05, and it may be useful to assess the intentions of males to drink and swim at more or less hazardous drinking levels to determine if similar beliefs hold for different levels of drinking behaviors. Finally, although the study revealed a number of beliefs to target in intervention programs, research is needed to determine the efficacy of interventions targeting such beliefs in changing males' intention and subsequently behavior.

Overall, the current study aimed to provide an understanding of the beliefs underlying the drinking and swimming behaviors among Australian men, which, to date, has received scant empirical attention. To the authors' knowledge, this is the first study to investigate the beliefs of male alcohol use and recreational swimming from a sound theoretical basis. The study identified a number of beliefs underlying this risk taking behavior that can be used in resultant intervention strategies aimed at decreasing males' swimming and drinking. Given that drowning is a common yet preventable problem, an increased understanding for at-risk target

populations is required to reduce drowning rates. This study was able to determine those critical beliefs of young males' intentions to drink and swim that can now inform the development of resultant intervention and prevention programs designed to discourage alcohol use in, on, or around water.

### Declaration of Conflicting Interests

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**Hannah Schmidt**, BPsychology (Honours), is a psychology honours graduate who has an interest in health behaviours. In particular, Ms Schmidt has an interest in injury-related behaviors related to alcohol consumption.