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RUNNING HEAD: Swimming between the flags

Swimming between the flags: A preliminary exploration of the influences on
Australians' intentions to swim between the flags at patrolled beaches

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Abstract

Swimming at patrolled beaches reduces the likelihood of drownings and near-drownings. The present study tested the theory of planned behaviour (TPB), with the addition of risk perceptions, in predicting people's intentions to swim between the flags at patrolled beaches. We examined also the predictors of people's willingness to swim [1] up to 10 metres and [2] more than 10 metres outside of the patrol flags. Participants (N = 526) completed measures of attitudes, subjective norm, perceived behavioural control (PBC), intentions/willingness, and both objective and subjective risk perceptions. Two weeks later, a sub-sample of participants reported on their beach swimming behaviour for the previous fortnight. Attitude and subjective norm predicted intentions to swim between and willingness to swim outside of the flags. Age and PBC influenced willingness to swim beyond the flags. Objective risk predicted willingness to swim beyond the flags (both distances) while subjective risk predicted willingness to swim up to 10 metres outside the flags. People's intentions to swim between the flags were correlated with their behaviour at follow-up. This study provides a preliminary investigation into an important safety behaviour and identifies factors to target when promoting safe swimming behaviours to prevent drowning deaths on Australian beaches.

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1. Introduction

In 2008-09, 13,185 rescues (10,621 rescues by surf lifesavers and 2,564 rescues by lifeguards) and 662,955 preventive actions (208,865 by surf lifesavers and 454,090 by lifeguards) were performed by surf lifesavers and Australian Lifeguard Service lifeguards on Australian beaches (Surf Life Saving Australia, 2009a). In this same time period 94 coastal drowning deaths occurred (63 deaths were at a beach location), with 32 of these deaths occurring close to a patrolled location (Surf Life Saving Australia, 2009b). Indeed, the majority of drowning deaths on Australian beaches occurs within 1km of a lifesaving service suggesting that people are choosing to swim adjacent to a patrolled area rather than within it (Leahy, Harrison, & Fenner, 1999; Surf Life Saving Australia, 2009b). This trend is concerning, considering that previous research has highlighted the decreased likelihood of successful resuscitation with increasing distance from patrol areas (Fenner, Harrison, Williamson, & Williamson, 1995).

Despite being aware of the risk of swimming outside of the patrolled areas where surf lifesavers supervise those swimming between the red and yellow flags, many people still report swimming outside the flags (Ballantyne, Carr, & Hughes, 2005). For example, Crook, (2000, as cited in Ballantyne et al., 2005) reported that 92% of Australians felt it was important to swim between the flags but only 61% of these participants regularly swam between the flags. Similarly, Mitchell and Hadrill (2004) found that just over half of their respondents (52.7%) reported that they always or mostly swam between the flags at the beach. In addition, in a recent New Zealand study (McCool, Moran, & O'Connor, 2006), 74% of participants agreed that if they swam between the flags at a surf beach they would be safe, yet 56% of these participants also agreed that if they went for a swim outside the flags it would not be a dangerous situation.

The reasons why people choose not to swim between the flags are unclear. It has been suggested that crowded beaches, distance to the nearest patrolled beach, narrow patrol areas (Leahy et al., 1999), and being unsure about what the flags mean (Ballantyne et al., 2005) are potential reasons for deciding to swim outside the flags; however, few studies have investigated empirically the impact of these reasons on decision-making (e.g., McCool, Ameratunga, Moran, & Robinson, 2009). As such, there is a paucity of research aimed at understanding the factors influencing individual decision making when choosing whether or not to swim between the red and yellow flags in patrolled beach areas. It is proposed that a useful decision making model to understand the factors influencing people's decisions to swim between the flags is the theory of planned behaviour.

1.1 The Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB; Ajzen, 1991) is a well validated model reflecting the cognitions underlying people's decision-making. According to the model, the most proximal determinant of people's behaviour is their intention to perform it. Intention is influenced by attitude (positive or negative evaluation of performing the behaviour), subjective norm (perceived social pressure to perform or not perform the behaviour), and perceived behavioural control (perceptions of ease or difficulty in relation to behavioural performance; also said to impact directly on behaviour). Meta-analytic results have provided support for the TPB predictors of intention (explaining 39% of the variance, on average) and behaviour (27% of the variance, on average) (see Armitage & Conner, 2001). Although not applied previously to the prediction of people's intentions to swim between the flags at patrolled beaches, the TPB has garnered much support in the prediction of people's safe behaviour choices such as road safety (e.g., Evans & Norman, 2003; Walsh, White, Hyde, & Watson, 2008) and sun safe (e.g., Jackson & Aiken, 2000; White et al., 2008) decisions.

1.2 Objective and subjective risk perceptions

Given that the TPB allows for the possibility of modifying the model to incorporate additional factors that may impact on decision making (Ajzen, 1991), the present study included a consideration of people's specific risk perceptions given that swimming outside of the flags is a behaviour recognised as risky by many people and is the source of safety campaigns by the Australian government and other interested bodies (e.g., Surf Life Saving Australia). Objective measures of risk in this context comprise factors such as one's swimming ability. Subjective risk perceptions include people's overall perceived risk estimates associated with performing the behaviour in a given context. Although swimming between the flags is conceptualised primarily as a safe behaviour, some swimmers believe there may be risks of swimming between the flags as they can often be crowded (especially in the busier Summer months) and swimming difficulties may go unnoticed. Given that there is a lack of agreement about whether risk perceptions should be considered separately or are encompassed by the TPB constructs of attitude and PBC (see e.g., Ajzen, 2006; Bonetti et al., 2006; Hsu & Chiu, 2004), the impact of risk perceptions on people's intentions to swim between and outside of the patrol flags was evaluated after the standard TPB factors were taken into account. In the present study, it was expected that people who perceived greater objective and subjective risk for swimming between and outside of the flags would be less likely to intend to do so.

1.3 The Current Study

The aim of the present study was to assess the utility of an extended TPB in predicting people's intentions to swim between the patrol flags as well as their willingness to swim [1] up to 10 metres and [2] more than 10 metres outside of the patrol flags at the beach. These two distances were chosen based on pilot data (see section 2.1). In addition, previous research suggests that both Australian and international visitors believe that swimming adjacent to a patrolled area will afford them the same assistance as provided for beach goers swimming between the patrol flags (Wilks et al., 2007). Further, a proportion of the beach related

drownings in Queensland, the location of this study, occurred within a short distance from a patrolled area (Surf Life Saving Queensland, 2006). People's willingness was used as an alternative outcome measure rather than their intention for 2 risky swimming behaviours (i.e., swimming outside of the flags – either up to 10 metres or more than 10 metres) given that people are sometimes reticent to state that they would intend to engage in a risky behaviour but may be more likely to report willingness to do so if the situation arises (see e.g., Gibbons & Gerrard, 1995) or specific circumstances (e.g., overcrowding between the patrolled area) are present. In addition to the standard TPB variables, the role of risk perceptions (objective and subjective) as influences on people's beach swimming intentions was examined. The relationship between intention/willingness and subsequent swimming behaviour for those providing self-report data at the 2 week follow up was assessed also.

Hypotheses

It was hypothesised that intention to swim between the patrol flags at the beach would be influenced by participants' attitudes, subjective norm, and perceived behavioural control (Hypothesis 1a), after controlling for the demographic variables of age and gender. For swimming [1] up to 10 metres and [2] more than 10 metres outside of the patrol flags at the beach, it was expected that participants' attitudes, subjective norm, and perceived behavioural control would predict intentions (Hypothesis 1b and 1c), after controlling for age and gender. In addition, it was expected that assessments of both objective risk (i.e., self-report swimming ability) and subjective risk of the situation would emerge as significant predictors of participants' intentions to swim between the flags as well as [1] up to 10 metres and [2] more than 10 metres outside of the patrol flags at the beach (Hypotheses 2a to 2c) after controlling for age and gender and the standard TPB constructs (attitudes, subjective norms, and perceived behavioural control). Finally, it was hypothesised also that participants' intentions to swim between the flag as well as willingness to swim [1] up to 10 metres and [2] more than 10 metres outside of the patrol flags at the beach would predict their respective, subsequent

behaviours for those participants providing data at the 2 week follow-up (Hypothesis 3a to 3c).

2. Method

2.1 Elicitation Study

Following ethical approval, a sample of English speaking, Australian residents/visitors who had resided in Australia for more than 3 months, who could swim, and went to a patrolled beach on a regular basis ($N = 32$; 10 males, 22 females; Age $M = 24.35$ years; $SD = 9.43$, range = 18 to 61 years) were initially surveyed to establish the distances that people commonly swam outside the patrol flags. Respondents received an AUD\$1 instant scratch-it containing the chance to win money as compensation for their time. Participants reported approximately how many metres outside the patrol flags (i.e., the red and yellow patrol flags that identify the area where it is safe to swim at the beach) they would be willing to swim. Seven participants reported that they never swam outside the patrol flags and 20 participants were willing to swim 5 metres or more outside the flags (range = 5m to 5km). A further five participants stated that they did not limit the distance they swam outside the patrolled area. The majority of respondents (75%) reported that they would swim 10 or more metres outside the patrol flags, whereas a smaller proportion of participants (25%) reported they would swim within 10 metres adjacent to the patrolled area. As such the distances chosen for the measures of willingness in the main study reflected this division: [1] up to 10 metres outside the patrol flags at a beach, and [2] more than 10 metres outside of the patrol flags at a beach.

2.2 Participants and Procedure

Ethical approval was granted from the university's human research ethics committee. The present study employed a prospective design with two phases of data collection, 2 weeks apart. Data for the main questionnaire were collected by a team of research assistants at beachside markets (with permissions from markets' managers) in South-East Queensland, Australia. Participants were approached by a member of the team and asked some initial

screening questions to determine eligibility to participate (18 years of age and over or, for those aged younger than 18 years, verbal consent provided by an accompanying parent/guardian, able to read/speak English, an Australian resident or visiting Australia for more than 3 months, able to swim, and planning to visit a patrolled beach in the next fortnight). Eligible participants were then informed about the study, and invited to complete the questionnaire. Participants aged over 18 years (or, for those aged younger than 18 years, their accompanying parents/guardians) received an AUD\$5 instant scratch-it containing the chance to win money. Two weeks later, consenting participants completed the follow-up questionnaire. Participant responses on the main (Time 1) and follow-up (Time 2) questionnaires were matched using a unique code identifier provided by the participant so data matching could occur whilst ensuring the anonymity and confidentiality of the information obtained from the questionnaires. The Time 1 questionnaire assessed standard TPB items specified by Ajzen (1991) as well as objective and subjective risk perceptions in relation to swimming (1) between the patrol flags, (2) up to 10 metres outside the patrol flags, and (3) more than 10 metres outside the patrol flags, in the next 2 weeks. At Time 2, a phone or email follow-up questionnaire (with data collection method preference indicated by each consenting participant at Time 1) asked participants about their behaviour in relation to swimming (1) between, (2) up to 10 metres outside, and (3) more than 10 metres outside, the patrol flags at a beach during the previous fortnight.

At Time 1, participants were 526 residents of/visitors to coastal areas in South-East Queensland, Australia. Participants were 307 females (58%) and 219 males (42%) aged 15 to 84 years ($M = 40.77$ years; $SD = 14.13$ years). A sub-sample (31%, $n = 162$) of the Time 1 participants completed the follow-up questionnaire 2 weeks later with only 62 participants reporting that they had swum at a beach (any beach) during the previous fortnight.

2.3 Measures

The target behaviour of swimming between the flags was defined as “swimming between the patrol flags at a beach in the next 2 weeks”. Participants were informed that the patrol flags referred to the “red and yellow flags that identify the area where it is safe to swim at the beach”. For swimming beyond the flags, there were individual sets of questions for the two separate behaviours of: [1] swimming up to 10 metres outside of the flags at a beach in the next 2 weeks and [2] swimming more than 10 metres outside of the patrol flags at a beach in the next 2 weeks. All items not related to background information were measured on 7-point Likert scales from (1) *strongly disagree* to (7) *strongly agree* unless otherwise stated, except for attitude, measured on a 7-point semantic differential scale. Higher scores on a scale represented a more positive response on the construct.

2.2.1 Intention/Willingness.

Participants’ intentions to swim between the patrol flags at a beach in the next 2 weeks was assessed using 2 items, “I intend to swim between the patrol flags at a beach in the next 2 weeks”; “It is likely that I will swim between the patrol flags at a beach in the next 2 weeks”. The average of these two items produced a reliable scale, $r(507) = .75, p < .001$.

Participants’ willingness to swim [1] up to 10 metres outside and [2] more than 10 metres outside of the patrol flags at a beach in the next 2 weeks was measured using 1 item for each behaviour, “I am willing to swim up to 10 metres (more than 10 metres) outside of the patrol flags at a beach in the next 2 weeks”.

2.3.2 Attitude.

Attitude toward swimming between the flags was assessed by averaging participants’ scores on four semantic differential items, “For me to swim between the patrol flags at a beach in the next 2 weeks would be...”. Items were scored (1) *bad* to (7) *good*; (1) *worthless* to (7) *valuable*; (1) *negative* to (7) *positive*; (1) *unfavourable* to (7) *favourable*. The scale was reliable ($\alpha = .94$).

Participants' attitude towards swimming [1] up to 10 metres outside and [2] more than 10 metres outside of the patrol flags at a beach in the next 2 weeks was measured using 1 item for each behaviour, "I think it would be good to swim up to 10 metres (more than 10 metres) outside of the patrol flags at a beach in the next 2 weeks".

2.3.3 *Subjective norm.*

For swimming between the flags, subjective norm was measured using the average of two items, "Those people who are important to me would approve of me swimming between the patrol flags at a beach in the next 2 weeks"; "Those people who are important to me would want me to swim between the patrol flags at a beach in the next 2 weeks". The two items measuring subjective norm were correlated at $r(508) = .73, p < .001$.

The measure of subjective norm for swimming [1] up to 10 metres outside and [2] more than 10 metres outside of the patrol flags at a beach in the next 2 weeks comprised one item for each behaviour, "Those people who are important to me would approve of me swimming up to 10 metres (more than 10 metres) outside of the patrol flags at a beach in the next 2 weeks".

2.3.4 *Perceived Behavioural Control.*

For swimming between the flags, perceived behavioural control was assessed using 2 items: "I have complete control over whether I swim between the patrol flags at a beach in the next 2 weeks"; and "It's mostly up to me whether I swim between the patrol flags at a beach in the next 2 weeks". Items The mean of the two items produced a composite scale with a significant correlation, $r(509) = .49, p < .001$.

Perceived behavioural control for swimming [1] up to 10 metres outside and [2] more than 10 metres outside of the patrol flags at a beach in the next 2 weeks was measured with one item for each behaviour, "It's mostly up to me whether I swim up to 10 metres (more than 10 metres) outside of the patrol flags at a beach in the next 2 weeks".

2.3.5 *Risk perceptions.*

A measure of objective risk was obtained by averaging the scores on two indicators of swimming ability, producing significantly correlated items, $r(522) = .66, p < .001$. For the first indicator, participants rated their swimming ability from (1) *poor* to (7) *excellent* (McCool et al., 2006). For the second indicator, participants rated how many lengths of a 25 metre swimming pool they could currently swim without stopping or touching the bottom on a response scale from up to (1) *up to 1 length (less than 25 metres)* to (5) *more than 16 lengths (more than 400 metres)* (McCool et al., 2006). For swimming between, up to 10 metres outside, and more than 10 metres outside, the patrol flags, subjective risk was assessed with one item for each behaviour “It would be risky for me to swim between (up to 10 metres outside/more than 10 metres outside) the patrol flags at a beach in the next 2 weeks” on a scale from (1) *strongly disagree* to (7) *strongly agree*.

2.3.6 Behaviour

Two weeks after completing the Time 1 questionnaire, a sub-sample of consenting participants who were able to be contacted completed a follow-up questionnaire which asked them: “If you swam at a beach (any beach) in the last 2 weeks, how often did you swim (1) between the patrol flags at a beach; (2) up to 10 metres outside of the patrol flags at a beach; and (3) more than 10 metres outside of the patrol flags at a beach?”. Item responses were from (1) *never* to (7) *every time*.

3. Results

3.1 Analyses Predicting Intentions to Swim Between the Patrol Flags

For the behaviour of swimming between the patrol flags, bivariate correlations, means, and standard deviations, are presented in Table 1. Participants reported a very favourable attitude towards swimming between the flags, perceived that significant others would strongly approve of the behaviour and that it was within their control. They indicated that they had strong intentions to swim between the flags and that it would not be risky to do so. The

predictor variables of gender, attitudes, and subjective norm were significantly correlated with intentions, with attitude and subjective norm as the strongest correlates.

Insert Table 1 about here

A hierarchical regression predicting intentions to swim between the flags was conducted. Age and gender were entered in step 1; attitude, subjective norm, and perceived behavioural control were entered in step 2; and risk perceptions (objective and subjective) were entered in step 3 (see Table 2). The linear combination of age and gender accounted for a significant 2% of the variance in intention to swim between the flags, $F(2, 429) = 4.08, p < .05$. At step 2, the standard TPB variables of attitude, subjective norm, and PBC accounted for an additional significant 41% of the variance, $F(3, 426) = 101.48, p < .001$. For Step 3, the entry of objective risk and subjective risk did not account for any additional variance in intention, $F(2, 424) = 2.15, p = .118$. In sum, 43% (42.4% adjusted) of variance in swimming between the flags was accounted for by the full model. At the final step of the analysis, the significant predictors for swimming between the flags were attitude and subjective norm.

Insert Table 2 about here

3.2 Analyses Predicting Willingness to Swim Outside of the Patrol Flags

For the behaviours of swimming outside of the patrol flags (up to and more than 10 metres), bivariate correlations, means, and standard deviations, are presented in Table 3. Participants reported negative attitudes towards swimming outside of the flags (both up to and more than 10 metres outside), perceived that significant others would disapprove of the behaviour and that they had a fairly high level of control in relation to swimming outside of the flags. Participants indicated only weak levels of willingness to swim outside of the flags and that it would be fairly risky to do so. For both swimming up to and more than 10 metres outside of the patrol flags, all of the predictor variables were significantly correlated with willingness, with attitude and subjective norm as the strongest correlates.

Insert Table 3 about here

Two hierarchical regressions were performed predicting people's willingness to swim outside of the flags (one for up to 10 metres outside of the flags and one for more than 10 metres outside of the flags). For each regression analysis, age and gender were entered in step 1; attitude, subjective norm, and perceived behavioural control were entered in step 2; and risk perceptions (objective and subjective) were entered in step 3 (see Table 4).

For willingness to swim up to 10 metres outside of the patrol flags, the Step 1 variables of age and gender accounted for a significant 15% of the variance, $F(2, 499) = 42.87, p < .001$. The addition of attitude, subjective norm, and PBC accounted for an additional significant 58% of the variance, $F(3, 499) = 345.40, p < .001$, and the subsequent addition of objective and subjective risk perceptions accounted for an additional significant 1% of the variance in willingness, $F(2, 494) = 6.95, p < .01$. Overall, 73% (72.7% adjusted) of the variance in willingness to swim up to 10 metres outside of the patrol flags was accounted for by the full model. At the final step of the analysis, the significant predictors were age, attitude, subjective norm, perceived behavioural control, objective risk, and subjective risk.

For willingness to swim more than 10 metres outside of the patrol flags, the linear combination of age and gender accounted for a significant 15% of the variance, $F(2, 502) = 43.3, p < .001$. The addition of the Step 2 variables of attitude, subjective norm, and PBC accounted for an additional significant 58% of the variance, $F(3, 499) = 352.38, p < .001$. Entry of the final step variables of objective and subjective risk perceptions accounted for an additional significant 1% of the variance, $F(2, 497) = 6.57, p < .01$. Overall, 73% (73.0% adjusted) of the variance in willingness to swim more than 10 metres outside of the patrol flags was accounted for by the full model. After all of the variables were entered into the equation, the significant predictors were age, attitude, subjective norm, PBC, and objective risk.

Insert Table 4 about here

3.3 *Associations Between Intentions/Willingness and Beach-Swimming Behaviour*

Given the low numbers of respondents reporting behaviour at Time 2, correlations only were examined between (1) intentions to swim between the flags and self-report behaviour at follow-up and (2) willingness to swim outside of the patrol flags (up to 10 metres outside and more than 10 metres outside) and their associated self-report behaviours at follow-up for the sub-sample of participants providing data at Time 2. Intentions to swim between the flags was correlated significantly with reported behaviour, $r(62) = .42, p < .001$. Willingness to swim up to 10 metres outside of the flags at the patrol beach was correlated significantly with self-report behaviour, $r(61) = .37, p = .003$. Willingness to swim more than 10 metres outside of the flags was not correlated significantly with self-report follow-up behaviour, $r(61) = .24, p = .059$.

4. *Discussion*

The present study examined the utility of the TPB, and risk perceptions, in predicting people's intentions to swim between the patrol flags and their willingness to swim outside of the flags on Australian beaches. Across the three behaviours of swimming between the flags and swimming outside of the flags (up to and more than 10 metres outside), the present study found support for the TPB constructs of attitude and subjective norm in predicting people's intentions/willingness. For swimming outside of the flags (up to and more than 10 metres outside), support was found for the role of control perceptions (PBC) in predicting people's willingness to swim beyond the flags. Some support was offered for the addition of the extended TPB constructs of objective risk and subjective risk in the present study in that objective risk significantly predicted willingness to engage in the two swimming behaviours outside of the patrolled area and subjective risk estimates predicted willingness to swim more than 10 metres outside of the flags. Of the demographic factors, age also predicted willingness to swim beyond the flags (both behaviours) with younger participants more willing to do so. Finally, there was some evidence that people's stated intentions/willingness to swim between

or outside of the flags (up to 10 metres) was associated with their subsequent actions two weeks later.

4.1 *Efficacy of the Theory of Planned Behaviour*

The present study demonstrated substantial support for the utility of the TPB in predicting people's safer and riskier beach swimming decisions. In partial support for Hypotheses 1a to 1c, attitude and subjective norm were significant predictors of people's intentions to swim between the flags and their willingness to swim outside of the flags (both up to and more than 10 metres outside of the patrol flags) after controlling for age and gender. Thus, the more favourable people's attitude and the more they perceived support from important others, the more they intended to swim between the flags/were willing to swim outside of the flags. Hypotheses 1a to 1c were not supported fully, however, as PBC was a significant predictor for the riskier beach swimming behaviours but not for the behaviour of swimming between the flags. For willingness to swim outside of the flags, the more people believed it was up to them whether or not they performed the behaviour, the more willing they were to do so. Overall, there was general support for the application of the TPB to the three beach swimming behaviours, with the TPB predictors accounting for a significant proportion (41% for swimming between the flags; 58% each for the swimming outside of the flags behaviours) of the variability in people's intentions/willingness after accounting for age and gender. These findings compare very favourably to meta-analytic results for the TPB (e.g., Armitage & Conner, 2001) and other TPB safety behaviour studies (e.g., Evans & Norman, 2003; Walsh et al., 2008; White et al., 2008).

In addition to the prediction of intention and willingness, the present study examined the association between these proximal determinants of behaviour and behaviour itself. Partial support was found for Hypotheses 3a to 3c as intention to swim between the flags was correlated with behaviour (supporting Hypothesis 3a) and willingness to swim up to metres outside of the flags was correlated with behaviour 2 weeks later (supporting Hypothesis 3b)

for the sub-sample of participants who provided follow-up data. Thus, there was evidence of some relationship between people's stated plans and their subsequent decisions which is consistent with the predictions of the TPB. The correlation between willingness to swim more than 10 metres outside of the flags and follow-up behaviour, however, was not significant (not supporting Hypothesis 3c). In the case of swimming more than 10 metres outside of the patrol flags, examination of the frequency data and means for willingness and behaviour showed a discrepancy between low levels of stated willingness to perform the risky behaviour but 25% of respondents still chose to swim more than 10 metres outside the patrol flags when contacted at follow-up 2 weeks later; a higher number than those who reported swimming within 10 metres of the patrolled area (15%). This finding suggests that, for the potentially riskiest of the behaviours assessed in this study, supportive circumstances to swim more than 10 metres outside the patrol flags (e.g., the encouragement of friends, ideal weather and surf conditions) may have outweighed people's original reservations to do so; future research is needed to explore this relationship further.

4.2 *Risk Perception Factors*

For the additional constructs of objective and subjective risk perceptions, there was some support for Hypotheses 2a to 2c. Although not significant when predicting people's intentions to swim between the flags (with no support for Hypothesis 2a), objective risk emerged as a significant predictor of willingness to swim both up to 10 metres and more than 10 metres outside of the patrol flag (supporting Hypothesis 2b) and subjective risk emerged as a significant predictor of willingness to swim more than 10 metres outside of the patrol flags (providing some support for Hypothesis 2c). In these cases, the less risk perceived by the individual (due to stronger swimming ability or less risky assessment of the situation), the more willing they were to swim outside of the flags. These results support the independent role of risk perceptions in this context, although these effects emerged on the willingness (not intention) outcome measure which is consistent with the approach of Gibbons and colleagues

(e.g., Gibbons & Gerrard, 1995) whereby willingness is an appropriate outcome measure for behaviours, as is the case with many risky behaviours that people do not intend to perform but may engage in if particular situational circumstances are present.

The combination of the demographic variables of age and gender accounted for significant variance in safer beach swimming intentions and riskier swimming willingness; however, only age emerged as a significant predictor of willingness to engage in the riskier swimming behaviours after all of the study's variables were accounted for. Younger people were more willing to swim outside of the flags in both scenarios (up to and more than 10 metres beyond the patrol flags); a finding that is consistent with previous research (e.g., McCool et al., 2006). It is possible that younger people feel less vulnerable to negative outcomes in relation to swimming outside a patrolled area (i.e., optimistic bias; see Weinstein, 1980). Alternatively, examination of the correlation between age and objective risk ($r = -.38$, $p < .001$) indicates that younger participants had lower objective risk, suggesting that they were more capable swimmers and, therefore, may have perceived that they could competently swim outside a patrolled area with minimal difficulties. Contrary to previous research showing that males are more likely than females to engage in risky swimming behaviours (e.g., McCool et al., 2006; SLSA, 2009b), there were no differences based on the gender of participant; men and women were equally likely to intend to swim safely and be willing to engage in riskier beach swimming.

These findings point to a number of sources of intervention for strategies designed to increase safe beach swimming compliance. Given that attitudes and subjective norms were significant for the safer and riskier beach swimming behaviours, it would appear beneficial to foster more positive attitudes to swimming between the flags by emphasising the benefits (e.g., highlighting the feelings of reassurance of having others looking out for our safety) and minimising the costs (e.g., being crowded). Similarly, it would be worthwhile to encourage less favourable attitudes toward riskier choices of swimming outside of the flags (e.g., by

focusing on the dangers such as rips and sharks and downplay the advantages such as more choices on where to swim). Campaigns should consider highlighting the perceptions of others' approval for safe swimming and their disapproval of swimmers outside of the patrolled area.

Given that control perceptions impacted significantly on willingness to engage in the riskier beach swimming behaviours, it may be useful to remind swimmers that, although the decision is ultimately their choice and within their control, there are repercussions of the choice in the case of negative outcomes such as experiencing difficulty in the water conditions. As people with stronger swimming ability were more likely to engage in the riskier beach swimming behaviours, reminding beach-goers that swimmers of all abilities can suffer from difficulties in the ocean may serve to be beneficial in encouraging adherence to patrolled beach swimming. As subjective risk influenced people's willingness to swim more than 10 metres outside of the patrol flags, beach signs of how dangerous unpatrolled beaches can be (e.g., symbolic pictures of sharks and swimmers being washed away to sea) may serve as a timely reminder to those considering swimming outside of the flagged areas. The failure of subjective risk to predict people's willingness to swim within 10 metres of a patrolled area may reflect also the need to correct the misperception that swimming adjacent to a patrolled area affords the same assistance given to those swimmers inside the red and yellow flags (Wilks et al., 2007). Finally, as younger swimmers were more willing to swim outside of the flags, safe swimming campaigns in schools and university settings and as part of TV programs and movies targeting the younger generation may be advantageous.

4.3 Strengths and Limitations of the Present Study

The strengths of the present study include the application of a sound theory basis to an under-researched area with substantial safety concerns for many locals and tourists, the use of a prospective component measuring subsequent beach swimming intentions and behaviour, and the examination of both safer and riskier behavioural decisions within the context under

investigation. However, there are a number of limitations of the present study. Self-report measures possess obvious limitations in that people's estimates of their abilities (e.g., swimming) and behaviour may be inaccurate. Additionally, in attempts to restrict the length of the questionnaire, the riskier swimming scenarios (swimming outside of the flags) were assessed with mostly 1 item scales. Another limitation of the present study relates to the sampling population; only a small proportion of Australia's vast coastline was covered by the data collection and it is possible that seeking participants in areas further from patrolled beach areas may have resulted in different responses. In addition, only a small sub-sample of the original participants agreed to or were able to be contacted 2 weeks later for the follow-up questionnaire assessing behaviour. Finally, as a preliminary investigation in an under-researched area, there is likely to be other factors that influence people's decisions that were not examined in the present study.

Future research, then, should consider potentially more accurate assessments of people's swimming decisions (such as others' assessments also or a diary method assessment) and employ multi-item scales for each construct. Canvassing the attitudes and behaviours of a broader sample of beachgoers, especially in more remote coastal regions, would be useful also. Strategies to increase willingness and ability to attract participants for the follow-up questionnaire should be considered such as the use of incentives for participation at both data collection time-points although it should be noted that the data collection was conducted over the annual Summer holiday period when the ability to re-contact participants, especially via email options, is more limited due to their increased mobility during this time. Examining risky swimming behaviour during the Summer months, however, is paramount given that over half of coastal drowning deaths take place during the Australian Summer (Surf Life Saving Australia, 2007, 2009b). Other factors that may impact on beach swimming decisions should be considered in future investigations such as the role of one's own personal or moral norms as to the right thing to do (e.g., Manstead, Terry, & Hogg, 2000) and, given the often social

nature of beach visits, the impact of others' choices on our swimming behaviour, constructs such as group norms (e.g., Terry & Hogg, 1996) may be worthy of inclusion. The extent to which beach swimming behaviour is habitual, especially for regular beach visitors, should be examined also.

5. *Conclusion*

Overall, the findings of the present study provide evidence for the TPB, incorporating risk perceptions in predicting people's intentions to swim between and outside of the patrol flags at Australian beaches. The TPB constructs of attitude and subjective norm predicted intentions to swim between the flags and willingness to swim outside of the flags (both up to and more than 10 metres outside of the patrolled area) revealing that the more favourable the attitudes and the more perceived pressure from others to perform the safer and riskier behaviours, the more likely people would intend and be willing to do so. A sense of control over being able to undertake the riskier behaviours of swimming beyond the flags (both up to and more than 10 metres outside of the flags) emerged also as a significant influence on people's preparedness to swim beyond patrolled areas. For the additional constructs examined, objective risk estimates related to swimming ability predicted willingness to swim outside of the flags (both up to and more than 10 metres outside of the patrolled area) with stronger swimmers more willing to do so. Subjective risk perceptions were only significant for willingness to swim beyond 10 metres outside of the flags suggesting that these perceptions of the risks inherent in the situation are only relevant at the more dangerous end of the behaviour spectrum. Younger people were willing to perform the two riskier swimming behaviours (outside of the patrolled area). There was some indication that people's intentions and willingness for the patrolled beach swimming choices were associated with their subsequent behaviour two weeks later. This study provides a useful preliminary investigation into understanding people's decision-making for an important safety behaviour, swimming between patrolled areas at the beach. Continued efforts to understand this behaviour will help

to inform strategies to save lives at the beach and reduce the burden on volunteer lifesavers in their efforts to reduce coastal drownings.

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Table 1

Means, Standard Deviations, and Bivariate Correlation Co-Efficients for Intentions to Swim Between the Patrol Flags

Variable	1.	2.	3.	4.	5.	6.	7.	8.
1. Gender	-							
2. Age	-.07	-						
3. Attitude	.11*	.08	-					
4. Subjective norm	.09*	.07	.57***	-				
5. PBC	.08	.08	.17***	.33***	-			
6. Intention	.13**	.02	.58***	.59***	.20***	-		
7. Objective risk	-.21***	-.38***	.05	-.02	.02	.03	-	
8. Subjective risk	-.01	.01	-.09	-.17***	-.08	-.06	-.02	-
<i>M</i>		40.77	6.44	6.50	6.35	6.03	3.61	2.16
<i>SD</i>		14.13	1.15	.99	1.11	1.50	1.34	1.95

Note. PBC = Perceived Behavioural Control. Gender classification = 1 male; 2 female)

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

Table 2

Hierarchical Multiple Regression: Extended TPB Predicting Intentions to Swim Between the Patrol Flags (N = 432)

Variable	B	β	R ²	ΔR^2
Step 1				
Gender	.17	.06	.02*	.02*
Age	.00	.03		
Step 2				
Attitude	.46	.35***	.43***	.41***
Subjective Norm	.57	.37***		
PBC	.02	.02		
Step 3				
Objective risk	.07	.07	.43	.01
Subjective risk	.04	.05		

Note. Weights provided are those found in final step of the analysis. PBC = Perceived

Behavioural Control. Gender classification = 1 male; 2 female)

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

Table 3

Means, Standard Deviations, and Bivariate Correlation Co-Efficients for Willingness to Swim Up to 10 metres and More than 10 metres Outside of the Patrol Flags

Variable	1.	2.	3.	4.	5.	6.	7.	8.	<i>M</i>	<i>SD</i>
1. Gender	-	-.07	-.17***	-.17***	-.08	-.17***	-.21***	.14**		
2. Age	-.07	-	-.24***	-.24***	-.17***	-.33***	-.38***	.01	40.77	14.13
3. Attitude	-.22***	-.25***	-	.69***	.22***	.79***	.17***	.18***	2.11	1.49
4. Subjective norm	-.18***	-.17***	.69***	-	.27***	.75***	.21***	-.16***	2.27	1.71
5. PBC	-.04	-.10*	.19***	.23***	-	.29***	.16***	.27***	5.08	2.10
6. Willingness	-.21***	-.30***	.83***	.69***	.22***	-	.29***	-.19***	2.49	1.81
7. Objective risk	-.21***	-.38***	.22***	.23***	.11*	.31***	-	-.14***	3.62	1.34
8. Subjective risk	.11	.03	-.16***	-.12**	.32***	-.17***	-.13**	-	5.31	2.04
<i>M</i>		40.77	1.90	2.11	5.02	2.23	3.62	5.21	-	
<i>SD</i>		14.13	1.35	1.61	2.12	1.69	1.34	2.17		-

Note. Correlations for swimming up to 10 metres outside of the flags are presented above the diagonal. Correlations for swimming more than 10 metres outside of the patrol flags are presented below the diagonal. PBC = Perceived Behavioural Control. Gender classification = 1 male; 2 female.

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

Table 4

Hierarchical Multiple Regression: Extended TPB Predicting Willingness to Swim Up to 10 Metres (N = 502) and More Than 10 Metres Outside of the Patrol Flags (N = 505)

Variable	B	β	R ²	ΔR^2
Up to 10 metres outside				
Step 1				
Gender	-.05	-.01	.15***	.15***
Age	-.01	-.08**		
Step 2				
Attitude	.60	.50***	.72***	.58***
Subjective Norm	.36	.34***		
PBC	.06	.07**		
Step 3				
Objective risk	.10	.08**	.73**	.01**
Subjective risk	-.05	-.05*		
More than 10 metres outside				
Step 1				
Gender	-.05	-.02	.15***	.15***
Age	-.01	-.08**		
Step 2				
Attitude	.80	.63***	.73***	.58***
Subjective Norm	.21	.20***		
PBC	.04	.05*		

Step 3

Objective risk	.10	.08**	.73**	.01**
Subjective risk	-.04	-.05		

Note. Weights provided are those found in final step of the analysis. PBC = Perceived

Behavioural Control. Gender classification = 1 male; 2 female.

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