

Situational Action Theory to Understand Risky Driving Behaviours in Beach Environments

Author

Anderson, L, Love, S

Published

2024

Journal Title

Journal of Road Safety

Version

Version of Record (VoR)

DOI

[10.33492/JRS-D-24-2-2311315](https://doi.org/10.33492/JRS-D-24-2-2311315)

Rights statement

This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CCBY-4.0). View this license's legal deed at <http://creativecommons.org/licenses/by/4.0> and legal code at <http://creativecommons.org/licenses/by/4.0/legalcode> for more information.

Downloaded from

<https://hdl.handle.net/10072/431842>

Griffith Research Online

<https://research-repository.griffith.edu.au>

Article Type 1: Peer-reviewed papers

Situational Action Theory to Understand Risky Driving Behaviours in Beach Environments

Levi Anderson^{1a}, Steven Love¹

¹ Road Safety Research Collaboration, University of the Sunshine Coast

Keywords: beach offending, road policing, situational action theory, drink driving, drug driving, speeding

<https://doi.org/10.33492/JRS-D-24-2-2311315>

Journal of Road Safety

Vol. 35, Issue 2, 2024

Abstract

This study used Situational Action Theory (SAT) to investigate personal and situational factors affecting risky driving behaviours (i.e., speeding, drink driving, drug driving) on the beach. A survey was conducted with 42 drivers, aged 17–60 years, on Teewah/Noosa Northshore Beaches. Following the SAT framework, factors including participants' morals, attitudes, behaviours, self-control, and situational influences were analysed. Results revealed that participants generally viewed offending driving behaviour on the beach as less risky, compared to on the road. Whilst participants reported a higher likelihood of drug driving on the beach, speeding was reported as more likely on the road. Correlational analyses indicated that participants' beliefs about driving behaviours were generally aligned between beach and road environments, potentially confirming that the 'person' factor within SAT, also plays a key role in beach offending. Finally, cross-tabulations suggested that the dominant motivator for beach-based risky driving was a perceived lower level of social judgment for the risky behaviours on the beach (a perception others were not concerned about risky behaviours). Preliminary findings of this study suggest that SAT could be a useful theory for understanding risky driving in distinct environments, such as beaches. SAT emphasises the interaction of personal characteristics (e.g., morals and self-control), with situational pressures (e.g., peers) and deterrents (e.g., risks). Nevertheless, factors associated with high risk driving behaviours displayed variation between beach and road contexts. Incorporating qualitative research methods might offer a more in-depth understanding of the decision-making processes underlying these risky behaviours.

Key findings

- Drivers perceive beach driving as less risky compared to road driving.
- Higher likelihood of drug driving on the beach, less speeding compared to roads.
- Lower social judgment on the beach influences more risky driving behaviours.
- Situational Action Theory (SAT) assists with understanding risky driving variations between environments.

Background

Introduction and Overview of Driving on Beaches

Recreational four-wheel driving has been a growing pastime for many Queensland road users, especially beach-related recreational driving. Beaches allowing vehicle access

in Queensland are recognised as official roads in accordance with state government laws (Stevens & Salmon, 2015). Consequently, the same traffic laws and regulations that apply to roads built and maintained by the state government extend to beach driving, including the use of posted speed limits which are reduced in camping zones. Although a large proportion of road safety research has focussed on

a Corresponding Author: Levi Anderson, landerson@usc.edu.au

driver behaviour across the general road network (e.g., sealed roads) in Queensland, only limited research has examined driver behaviour and offending in off-road conditions, especially across beach locations.

The beach driving environment differs markedly from the general road network in a number of ways. Beach driving presents dynamic and complex situations that can change rapidly with unstable sand surfaces, physical hazards (e.g., rocks), changes in ocean tides, compromised roadways (e.g., people fishing, walking, sunbathing, playing sports and other recreational activities), and limited roadway signage and infrastructure (Stevens & Salmon, 2016). Furthermore, navigating a vehicle on the beach introduces a scenario of unfamiliarity for numerous drivers, and is exacerbated by the necessity of utilising four-wheel drive (4WD) vehicles (Keall & Newstead, 2007; Stevens & Salmon, 2016). These vehicles can pose an increased risk of rollover, particularly for drivers with limited experience (Keall & Newstead, 2009).

Risky Driving Behaviour

Understanding risky driving behaviour is crucial due to its direct impact on road safety. Every year, millions of road traffic crashes occur worldwide, resulting in fatal and serious injuries, alongside substantial economic costs (WHO, 2023). The Australian National Road Safety Strategy (2021) highlights that risky driving behaviours increase a driver's risk of being involved in a crash and defines them as any actions that deviate from legal requirements. Examples of risky driving behaviours include speeding (Watson et al., 2015), driving under the influence of alcohol or drugs (Drummer et al., 2020), not wearing a seat belt, tailgating, and using a handheld mobile phone while driving (Nemme & White, 2010). These behaviours are influenced by various factors, including individual personality traits, societal norms, and environmental conditions. To gain a deeper understanding of how the interaction of environmental factors associated with beach driving and the personal factors can influence drivers to engage in risky behaviours, this exploratory study utilised Situational Action Theory (SAT) as its foundational theoretical framework.

Situational Action Theory and Road Safety

SAT is a theoretical framework that posits human actions, including rule-breaking and crime, are an outcome of interactions between personal characteristics and the specific settings in which people find themselves (Wikström, 2014; Wikström & Treiber, 2015). Specifically, SAT explains that criminal behaviour is the result of influences from (a) individual or personal factors such as morals and self-control; and (b) the immediate situational context, which involves social and environmental pressures (see [Figure 1](#)).

According to SAT, a person's behaviour is a function of personal factors and the controls against offending behaviour they encounter in specific situations and environments. The theory suggests that when an individual with a higher propensity for deviance encounters a situation that presents opportunities for such offending behaviour, with-

out sufficient controls to deter it or in the presence of motivating factors, the likelihood of engaging in offending actions increases (Wikström & Treiber, 2015). Previous uses of SAT to understand offending have had some success with one study determining a moderate ability to explain white-collar crime (Jordanoska, 2018). Furthermore, recent SAT research examined life-course offending and reinforced the importance of both personal and environmental (or situational) factors when attempting to understand and prevent offending (Kessler & Reinecke, 2021). However, in the context of road safety, the use of SAT to understanding offending is limited.

In more recent research, SAT has been applied to understand risky road behaviours by examining how personal predispositions (e.g., an individual's propensity for risk-taking, purpose for the trip) interact with situational factors (e.g., road conditions or peer influence) (Rose, 2022). For example, while a driver with low propensity for crime might never offend in any situation, a driver with a moderate inclination for crime may not necessarily engage in dangerous driving unless prompted by certain situational cues, like peer pressure or an empty stretch of highway with low certainty of apprehension. In contrast, drivers with highly problematic predispositions may engage in risky driving regardless of the situational risks, and do so habitually (i.e., without rational deliberation), if the risky driving behaviours are frequently undertaken elsewhere (Love et al., 2022). That is, drivers who naturally tend to engage in risky driving will do so regularly and automatically, not influenced by the potential dangers of the specific situations (such as driving on the beach), especially if they often practice these risky behaviours in their everyday driving behaviour. The importance of SAT in this domain is therefore its comprehensive approach that considers both the personal and situational factors leading up to offending behaviour.

Given the comprehensive approach taken by SAT, the application of its theory to the context of beach driving, may provide a greater understanding of how individual decision-making processes intersect with environmental and social factors. Early work on the use of SAT and criminal behaviour by Wikström (2014) suggests that the primary causes of human actions are situational. Therefore, the context of beach driving, unlike standard road conditions, presents unique situational variables that can influence driver behaviour, such as soft sand, changing tides, open space terrain, and unpredictable terrains. Personal factors like driving experience, skill level, and risk-taking tendencies, combined with situational dynamics such as beach driver density, visibility, and social influences could also impact the driving decision-making process.

Gaps in the Literature and Study Aim and Objectives

At present, literature on driver offending has primarily focused on urban and highway environments, with a scarcity of studies specifically addressing high-risk driving behaviours on beaches or using SAT. These gaps in the literature are notable, as beaches present unique driving challenges (e.g., sand, water), social dynamics (e.g., peer pressure, de-

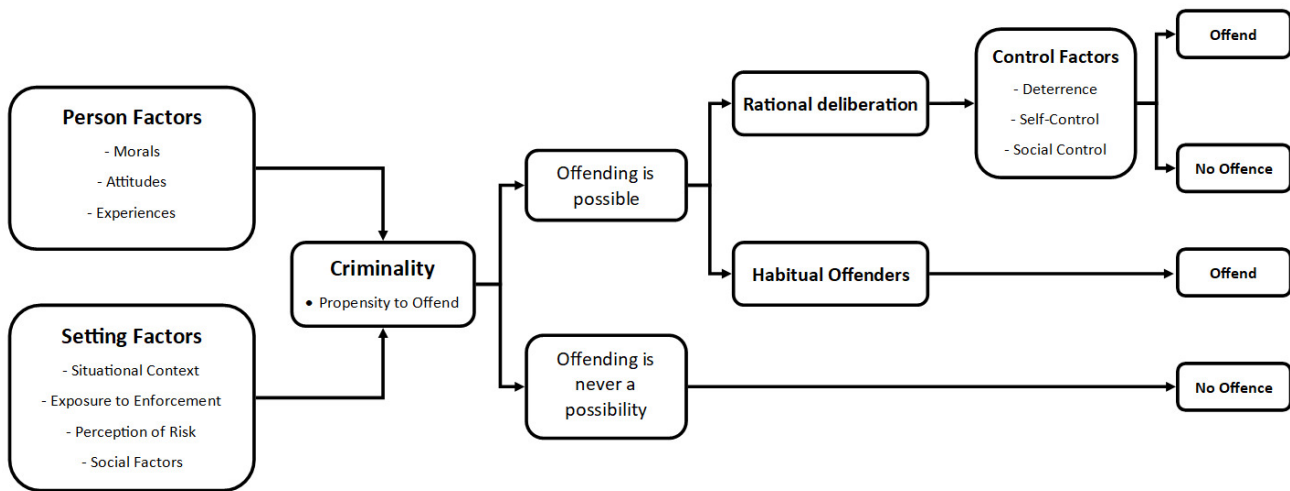


Figure 1. Logic Model for the use of Situational Action Theory (adapted from Wikström, 2019)

mographic groups), and situational risks (e.g., apprehension or injury). The aim of this research was to begin exploring the factors associated with driver offending on the beach. To achieve this aim, three objectives were developed. The first objective was to examine the potential demographics (i.e., age, gender, licence type, purpose of trip) and characteristics (e.g., self-control, morality, experiences with beach related offending) of drivers on the beach. The second objective was to compare beach drivers' perceptions of risk (i.e., injury, apprehension, social judgement) and attitudes towards driving laws across typical roads and beach-based environments. Finally, the third objective was to explore what motivational factors might be influencing drivers on the beach to speed or drive when under the influence of alcohol or drugs.

Method

Procedure and Participants

Potential participants were approached and invited to participate in the study by members of the research team in the recreational areas of the Teewah and Noosa North Shore beaches. Participants were required to be a driver on the beach during their current trip to be eligible for the study. Recruitment occurred on three weekend days and during holiday times to increase the likelihood of recruiting a variety of the general beachgoing population. Participants who consented were given a printed survey to complete and were offered a \$10 gift card after completion of the survey, in recognition of their time. The survey was completed face-to-face and with a paper and pencil due to poor cellular reception. Overall, the survey took participants between 10 and 15 minutes to complete. In total, 42 participants were recruited. The age of participants ranged between 17 and 60 years old and the majority were male. Further characteristics of the sample are displayed in the results section (Table 1).

Measures

The survey was designed to explore participants' perceptions of risk, driving experience, and any experiences with law enforcement regarding driving on the beach and on the road. The survey was designed using the SAT framework (Wikström, 2019) to understand the personal and situational factors that influence a driver's decision to offend. Items were created for this study with the purpose of testing the applicability of this theory to a unique road safety context. Survey items were created relevant to the beach environment and in keeping with the SAT framework, and included moral, social/peer, environmental, experiential, and situational factors. At the commencement of the survey, basic demographic information was collected, such as gender, age, licence type, and frequency of travel on the beach. The majority of items were measured on a 5-point Likert scale (e.g., *strongly disagree to strongly agree; very unlikely to very likely, etc*) to match the context of the question. In addition, participants were required to select multiple factors that they identified as impacting their decision to offend on the beach. The survey was piloted internally at the Road Safety Research Collaboration, University of the Sunshine Coast to seek critical feedback and ensure clarity of the items.

Morality and Self Control

A number of items used in this study were used previously in SAT research addressing morality, self-control, deterrence, and drug use influences associated with youth crime (Gallupe & Baron, 2014) (8 questions). A total of three morality ($\alpha = .59$) and five self-control items ($\alpha = .70$) were used. These items included "How wrong do you think it is to break the law?" and a number of statements that sought the extent of participant agreement such as "I often act on impulse (spur of the moment) without stopping to think" and "People should obey the law even if it doesn't serve their interests".

Offence-specific Items

The main body of the survey (30 questions) was divided into three replicated batteries of questions with a focus on speeding, drink driving, and drug driving. Items within each battery included questions that focused on participants' previous offending and punishment history, intentions to offend, perceived appropriateness of laws, perceptions of social approval for non-compliance, perception of risk, perception of apprehension, and peer perceptions of offending. Items within the offence question batteries were asked in the contexts of driving on the road and on the beach and measured on a 5-point Likert scale.

These items were designed to capture the social, situational and control factors within the SAT model (Figure 1). An example of intentions of offend include "On a typical weekend up the beach, how likely is it that you would intentionally exceed the speed limit?", "Do you intend to exceed the speed limit on the beach this weekend?". To obtain perceptions of peer views, participants were asked "Even if you don't speed, if you were to speed in the following settings, what would your friends think?". A certainty of apprehension item was adapted from previous literature to measure certainty of apprehension and severity of punishments (Freeman & Watson, 2006) such as "How likely do you think it is that you would get caught by police for speeding in the following settings?". For drink and drug driving offences the wording was changed to elicit a response even if the driver does not engage in the behaviour in order to measure the certainty of apprehension. The modified certainty of apprehension questions were, in the case of drink driving, "Even if you don't drink drive, if you were to drink drive, how likely do you think it is that you would get caught by police for drink driving in the following settings?".

Factors of Influence

The final section of the survey examined specific reasons that might influence the decision to engage in offending behaviours on the beach. These items were specifically crafted for this survey, considering the unique context of beach driving and its drivers (listed below). Respondents were asked to indicate their level of agreement across nine items (with an additional space for a text response) using a 5-point Likert scale, ranging from *Strongly disagree* to *Strongly agree*. This approach aimed to provide insights into multiple factors that may contribute to offending behaviours, encompassing perceived risks, social influences, and individual attitudes towards offending.

Factors of Influence

The following question relates to speeding. These questions were also replicated for drink driving and drug driving.

The following questions are related to factors that might increase your decision to speed on the beach. Please choose a score that best reflects how the corresponding statement influences your behaviour.

- Because there is only a small chance to hurt someone

- Because there is only a small chance of being caught
- Because people don't care as much about [offence] on the beach
- Because [offence] doesn't actually impact my driving.
- Because the people I am here with will all be doing it
- Because I tend to just get carried away when on the beach
- Because the beach is a place to have fun and blow off steam
- Because it's just something that I've always done
- Other

Data Analysis

Following completion of the data collection, the data were manually inputted into SPSS (version 29) and the variables were formed. To first examine the participant characteristics, descriptive statistics (frequencies and means) were run on the demographic, situational, behavioural (e.g., current beach behaviours) and psychological (e.g., attitudes, morals, and self-control) variables. Secondly, to compare participants' perceptions and behaviours regarding risky driving behaviours, across the beach and road environments, paired sample t-tests were used. Effect sizes were interpreted using guidelines provided by Cohen (2013), in which $d = .20$ was small, $d = .50$ was medium, and $d = .80$ was large. Post-hoc power analysis indicated that the analyses would only be able to detect small to medium effect sizes ($d = .45$), at the .80 power level. Lastly, cross-tabulations were employed to assess how psychological and situational factors might influence the decision to partake in risky driving behaviours on the beach specifically.

Results

Characteristics of Participants

The descriptive statistics of participants' demographic information and beliefs about the behaviours are displayed in Table 1. Of the total sample ($N = 42$), the majority ($n = 33$; 78.6%) were male, and the age of participants ranged between 17 and 60 years ($M_{\text{age}} = 29.33$, $SD_{\text{age}} = 12.0$). More than half of the participants ($n = 24$) were classified as mature-aged drivers (aged 25 years and older). The majority of drivers reported holding an open driver's licence ($n = 32$), whilst 19.0 percent held a provisional licence ($n = 8$), 2.4 percent held a commercial licence ($n = 1$), and 2.4 percent had their licence suspended at the time ($n = 1$). On average, participants reported that they visited Teewah/Noosa North Shore Beach three times per year and commonly reported that their current trip was for an overnight stay (e.g., camping, beach house), rather than a day trip. On average, participants generally perceived the current driving laws surrounding speeding, drink driving, and drug driving, to be appropriate; had moderately good morals towards law abiding; and exhibited some degree of self-control over behavioural impulses. Just over half of participants ($n = 24$, 55.8%) reported that they would definitely not intentionally speed on their current beach trip, whilst the majority responded that they would definitely not drive on the

Table 1. Characteristics and Behaviours of Participants

Category	Variable	n	%
Gender	Male	33	78.6
	Female	9	21.4
Age Group	17-24	17	41.5
	≥25	24	58.5
Licence Type	Provisional	8	19.0
	Open	32	76.2
	Commercial	1	2.4
	Suspended	1	2.4
Trip Duration	Day trip	13	31.0
	Overnight Stay	29	69.0
		M	SD
Beach Experiences ^a	Beach Frequency ^a	3.29	1.50
	Police Exposure ^b	2.69	1.18
Morality and Self Control	Attitudes towards laws ^c	2.88	.56
	Morals about offending ^d	3.88	.85
	Self-Control ^e	3.67	1.11
Beach Behaviour ^f	Speeding - current trip	1.81	1.02
	Drink driving - current trip	1.38	.70
	Drug driving - current trip	1.67	1.41
Peer Beach Behaviour ^g	Speeding	1.76	1.03
	Drink driving	1.24	.82
	Drug driving	1.24	.69

^a 1 = Not usually, 5 = four or more; ^b 1 = Never, 5 = Always; ^c 1 = Very Harsh, 5 = Very Lenient; ^d 1 = Very Wrong, 5 = Nothing Wrong at All; ^e 1 = Strongly Disagree, 5 = Strongly Agree; ^f 1 = Definitely Not, 5 = Definitely Yes; ^g 1 = None at all, 5 = All of them

trip when influenced by alcohol ($n = 31$, 72.1%) or drugs ($n = 35$, 81.4%). As such, on average, participants reported a very low likelihood that they would speed, drink drive, or drug drive during their current trip. Similarly, participants on average reported that they believed it was also unlikely that their peers would engage in these behaviours.

Behaviours, Attitudes, and Risk Perceptions Across Situations

When comparing participants' behaviours, attitudes towards laws, and risk perceptions across the beach and road (see [Table 2](#)), the results showed that for speeding, participants were significantly more likely to: engage in speeding on the road, perceive speeding laws as harsher on the road, and perceive lower risks for injury, apprehension, and social judgement on the beach, compared to the road. The results for drink driving showed that participants only held a significantly lower perceived risk of apprehension and social judgement on the beach, compared to the road. Finally, the drug driving comparisons revealed that participants were significantly more likely to report drug driving, perceive drug driving laws to be harsher, and perceive a lower risk of injury and social judgement; on the beach, compared to the road. The effect size of these comparisons ranged from small to medium. Of note, correlations of responses between the beach and road conditions were all significant,

except for perceptions of apprehension certainty, while perceptions of injury and judgement likelihood are relatively stable and tied to the behaviour, perceptions of apprehension certainty may be more so reactive to environmental circumstances. The descriptive statistics (left), comparative statistics (middle) and correlations (right) are displayed in [Table 2](#).

Factors of Influence Towards Risky Driving Behaviours

Cross-tabulations (see [Table 3](#)) were performed to identify the potential motivational factors that influenced participants' willingness to offend on the beach (speed; drink drive; drug drive). Each of the factors of influence items were presented to participants to determine which factor may increase or contribute to their decision to commit the specific offence within the beach environment. Believing others were not concerned about the behaviours on the beach, appeared to have the largest influence on participants' potential engagement in all three offending behaviours. The extent to which the remaining proposed factors influenced the participants' offending behaviours seemed to vary across the three types of offences. However, of note, the proportions of participants who believed that the proposed factors would influence their behaviour, was higher for speeding, compared to drink and drug driving.

Table 2. Comparisons of Behaviours, Attitudes and Perceptions Across the Beach and Road

Behaviour	Variables	On Road		On Beach		Comparisons			Correlations	
		M	SD	M	SD	t	p	d	r	p
Speeding										
	Behaviour Likelihood ^a	2.16	1.09	1.74	.90	2.51	.016	.387	.39	.010
	Law Appropriateness ^b	3.02	.91	2.63	.95	2.37	.022	.366	.31	.044
	Risk of Injury ^a	3.19	1.01	2.49	1.45	3.27	.002	.504	.44	.004
	Risk of Apprehension ^a	3.51	1.01	2.74	1.09	3.81	<.001	.589	.21	.179
	Risk of Judgement ^a	3.81	.96	3.35	1.23	2.34	.024	.361	.37	.017
Drink Driving										
	Behaviour Likelihood ^a	1.31	.84	1.43	.91	-1.40	.168	-.222	.81	<.001
	Law Appropriateness ^b	2.98	.64	2.93	.64	.57	.570	.088	.65	<.001
	Risk of Injury ^a	3.23	1.45	3.17	1.45	.72	.474	.112	.90	<.001
	Risk of Apprehension ^a	3.83	1.19	3.05	1.17	3.42	.001	.527	.20	.206
	Risk of Judgement ^a	4.36	1.03	3.93	1.44	2.12	.040	.327	.48	>.001
Drug Driving										
	Behaviour Likelihood ^a	1.14	.35	1.81	1.27	-3.94	<.001	-.608	.60	<.001
	Law Appropriateness ^b	3.05	1.04	2.71	.94	2.47	.018	.381	.61	<.001
	Risk of Injury ^a	3.62	1.31	2.90	1.65	3.30	.002	.510	.57	<.001
	Risk of Apprehension ^a	3.36	1.50	2.95	1.13	1.33	.192	.205	-.12	.449
	Risk of Judgement ^a	4.67	.65	3.83	1.38	4.20	<.001	.648	.37	.015

Note: ^a 5-point scale (1 = very unlikely, 5 = very likely) ^b 5-point scale (1 = Very Harsh, 5 = Very Lenient)

Discussion

This paper aimed to address the gaps in the contemporary literature on risky beach driving by using SAT to explore personal and situational factors. Employing SAT as its theoretical underpinning, this study sought to examine the characteristics, attitudes, and factors that contribute to driver offending on the beach and road environments.

Behaviour, Attitudes and Perceptions of Risk on the Road and on the Beach

The aim of this study was to assess the behaviour, attitudes, and perceptions of risks associated with offending when driving on the beach. The study identified that significant differences existed between reported offending on the road compared to reported offending on the beach. In effect, drivers report being less likely to drink or drug drive on the road compared with the beach environment. In contrast, drivers reported they were more likely to speed on the road, compared with the beach. Although, the statistical significance differed between the three behaviours, participants generally reported a lower perceived risk of injury, apprehension, and social judgment associated with the offending behaviours, when compared with typical road environments. Notably, complementary correlational analyses suggested that the perceived risk of injury and judgement were more stable across the environments, whereas the perceived risk of apprehension was more reactive to environmental difference. In conjunction with SAT, such findings potentially highlight the unique roles that the 'person' (i.e., morals) and 'situational' (i.e., deterrents) play in the decision for offending.

Based on the lower perceived risk of apprehension for drink driving (and drug driving, however not statistically significant), the higher reported likelihood of offending is consistent with previous deterrence-based research on the behaviour (Homel, 2012; Watson & Freeman, 2007). This would suggest that interventions that aimed to increase the perception of risk for such driving behaviours could be a focus of future research aiming to reduce offending within the beach environment. The findings of the research indicate that drivers may have varying risk perceptions and a willingness to engage in certain behaviours depending on the driving context and the nature of the traffic offence. Furthermore, one factor that was salient for all three offending types was the perception of social judgement (being lower on the beach) indicating that there may also be a social component impacting a driver's decision to offend on the beach.

Factors Influencing Offending

The current study also sought to understand the factors influencing participants' offending behaviour while driving on the beach. Initial results indicated that perceptions of others' disregard for the risky behaviours on the beach greatly influenced participants, with 11.9 ($n = 5$) to 26.2 ($n = 11$) percent citing this as a key factor for offending. This is consistent with previous research that identifies peer risk-taking and peer pressure as significant factors in speeding behaviour (Gheorghiu et al., 2015). The next most influential reason for offending was the belief in a low likelihood of getting caught or apprehended, with 9.5 to 21.4 percent of participants ranking this factor as a primary motivator. The relationship between a low perception of get-

Table 3. Proportions of the Motivating Factors Behind Offending on the Beach

Motivating Factors	Disagree		Unsure		Agree	
	n	%	n	%	n	%
Speeding						
People don't care much about speeding on the beach	25	59.5	6	14.3	11	26.2
Speed limits are too slow for how long the drive is	22	52.4	10	23.8	10	23.8
There is only a small chance of being caught on the beach	25	59.5	8	19.0	9	21.4
I tend to get carried away when I am on the beach	27	64.3	7	16.7	8	19.0
There is only a small chance to hurt someone when on the beach	26	61.9	9	21.4	7	16.7
Speeding doesn't actually impact my driving	28	66.7	9	21.4	5	11.9
The beach is a place to have fun and blow off steam	32	76.2	5	11.9	5	11.9
It's something I've always done when on the beach	36	85.7	1	2.4	5	11.9
People I am with will be doing it	33	78.6	7	16.7	2	4.8
Drink Driving						
People don't care much about drink driving on the beach	27	64.3	5	11.9	10	23.8
There is less chance of being caught on the beach	29	69.0	9	21.4	4	9.5
I will be drinking most of the time and need to go places	31	73.8	7	16.7	4	9.5
There is less chance to hurt someone	31	73.8	8	19.0	3	7.1
Alcohol doesn't impair my driving	32	76.2	7	16.7	3	7.1
I tend to get carried away when I am on the beach	34	81.0	5	11.9	3	7.1
The beach is a place to have fun and blow off steam	32	76.2	7	16.7	3	7.1
It's something I've always done when on the beach	34	81.0	6	14.3	2	4.8
People I am with will be doing it	34	81.0	7	16.7	1	2.4
Drug Driving						
People don't care much about drug driving on the beach	29	69.0	8	19.0	5	11.9
There is less chance of being caught on the beach	29	69.0	8	19.0	5	11.9
There is less chance to hurt someone on the beach	33	78.6	6	14.3	3	7.1
People I am with will be doing it	35	83.3	5	11.9	2	4.8
I tend to get carried away when on the beach	35	83.3	5	11.9	2	4.8
The drugs I take don't impair my driving	34	81.0	7	16.7	1	2.4
I will be taking drugs most of the time and need to go places	37	88.1	4	9.5	1	2.4
The beach is a place to have fun and blow off steam	33	78.6	8	19.0	1	2.4
It's something I've always done when on the beach	38	90.5	3	7.1	1	2.4

ting caught and drivers increased willingness to offend is well documented (Bates et al., 2020; Freeman & Watson, 2006; Truelove et al., 2017).

While the responses to other motivational factors were varied and diverse, one clear trend emerged relating to speeding and drink driving, in that participants' decisions to speed or drink drive appeared to be more heavily influenced by what they thought others would think of them, or by the fear of getting caught, compared to drug drive offending. It is important to note that for most factors considered, 10 to 20 percent of survey participants were unsure whether these factors would affect their likelihood of engaging in offending behaviour. The high level of ambiguity among respondents may suggest an openness to influences that could lead to offending behaviour, particularly in a beach environment. However, it is also possible that participants did not adequately understand the question, or that non-offenders had trouble imagining what factors would influence their offending.

SAT and Beach Offending

A central component of this research was examining the applicability of the SAT to a group of road users within a unique road environment. SAT postulates that offending behaviours, in specific situations, arise from the interaction of individual, environmental, social, and control factors. In this study, a considerable proportion of participants believed that their peers were more approving of some offending behaviour on the beach compared with the road environment and this may impact their decision to offend. This aligns with the tenets of SAT, where perceived moral norms of the environment (in this case, the beach) play a pivotal role, along with personal moral rules, in determining an individual's actions. Furthermore, a number of participants reported that they had low perceptions around the risk of apprehension (9.5-21.4% depending on the offence type), which based on previous deterrence research, suggests can lead to an emboldening of offending behaviours (Piquero & Pogarsky, 2002).

Implications and Limitations

There are several implications that arise from this study. First, this study highlights the important link between risk perceptions (social judgement, injury likelihood; apprehension certainty) and willingness to commit driving offences. Second, the study contributes to the literature by identifying SAT as a viable theory for exploring a range of offending behaviours in diverse contexts. Third, a low perception of social judgement (i.e., drivers think that others don't care about their behaviours on the beach) or getting caught for offending on the beach is a concerning finding considering the link to reported offending and may be of interest to enforcement agencies. Preliminary investigations on driver characteristics also showed that while general offending, morality and self-control were relatively low risk among the current sample, there may be an over-representation of younger ages and male drivers on the beach, which are well established demographic factors associated with a higher likelihood of offending. Such information may be of benefit to the design of future research and intervention targeting beach offending.

The present study had some limitations. Given that the study relies on self-reported data from surveys, there is potential for social desirability bias. Participants may have provided responses they believe to be more socially acceptable, rather than revealing their true beliefs or behaviours on the beach. The cross-sectional nature of the study only captures a snapshot in time and might not be able to account for temporal changes in attitudes or behaviours. Furthermore, it is noted that the sample size is relatively small, which may limit the generalisability of the findings and of identified sample characteristics to the wider population of beach users. Despite these limitations, this study was exploratory and contributes to the knowledge base by taking initial steps to understand aspects of road safety offending in the unique and complex milieu of the beach.

Conclusion

Beach driving, an increasingly popular activity among Queensland road users, offers a distinct and multifaceted driving environment that diverges significantly from traditional roadways. Despite being categorised as a “gazetted road” under state legislation, beach driving encapsulates a microcosm with its own physical challenges, including dynamic sand terrains, potential physical obstructions, and concurrent recreational activities. This study examined the contrasts in risk perceptions between beach and road driving, factors influencing offending decisions, and the applicability of the SAT to this specific subgroup of road users.

The findings underscore that drivers recognise the inherent but perceived diminished risks of speeding, drink driving, and drug driving on the beach. However, their speed and drink drive offending may be swayed by perceptions of social norms and the reduced likelihood of apprehension. Drug drivers, however, reported low perceptions of apprehension and influence by peers on the beach. The results highlight the influence of peers and the perceived lower risk of consequences (physical, social, or legal) for speeding and drink driving in this environment, echoing the foundational tenets of the SAT. This research has identified some of the nuances of beach driving behaviours and also reinforced the versatility and relevance of established theoretical frameworks, like SAT, in further understanding them.

Acknowledgements

Professor Michele Clark for assistance proof reading and mentoring throughout the publication process.

Author contributions

Levi Anderson led this project with the design, conceptualisation, execution, and publication. Steven Love assisted with the design, conceptualisation, execution, analysis of data, and publication.

Funding

This research was conducted by the Road Safety Research Collaboration, funded jointly by the Motor Accident Insurance Commission and the University of the Sunshine Coast.

Human Research Ethics Review

Study protocols were reviewed and approved by the University of Sunshine Coast University Human Research Ethics Committee, approval number A21789 on 11/10/2022.

Data availability statement

The data that support the findings of this study are not publicly available due to privacy and ethical restrictions.

Conflicts of interest

The authors declare that there are no conflicts of interest.

Submitted: November 24, 2023 AEST, Accepted: April 08, 2024 AEST



References

- Bates, L., Anderson, L., Rodwell, D., & Blais, E. (2020). A qualitative study of young drivers and deterrence based road policing. *Transportation Research Part F: Psychology and Behaviour*, 71, 110–118. <https://doi.org/10.1016/j.trf.2020.04.003>
- Drummer, O. H., Gerostamoulos, D., Di Rago, M., Woodford, N. W., Morris, C., Frederiksen, T., Jachno, K., & Wolfe, R. (2020). Odds of culpability associated with use of impairing drugs in injured drivers in Victoria, Australia. *Accident Analysis & Prevention*, 135, 105389. <https://doi.org/10.1016/j.aap.2019.105389>
- Freeman, J., & Watson, B. (2006). An application of Stafford and Warr's reconceptualisation of deterrence to a group of recidivist drink drivers. *Accident; Analysis And Prevention*, 38(3), 462–471. <https://doi.org/10.1016/j.aap.2005.11.001>
- Gallupe, O., & Baron, S. W. (2014). Morality, self-control, deterrence, and drug use: Street youths and situational action theory. *Crime & Delinquency*, 60(2), 284–305. <https://doi.org/10.1177/0011128709359661>
- Gheorghiu, A., Delhomme, P., & Felonneau, M. L. (2015). Peer pressure and risk taking in young drivers' speeding behavior. *Transportation Research Part F: Traffic Psychology and Behaviour*, 35, 101–111. <https://doi.org/10.1016/j.trf.2015.10.014>
- Homel, R. (2012). *Policing and punishing the drinking driver: a study of general and specific deterrence*. Springer Science & Business Media.
- Jordanoska, A. (2018). The Social Ecology of White-Collar Crime: Applying Situational Action Theory to White-Collar Offending. *Deviant Behavior*, 39(11), 1427–1449. <https://doi.org/10.1080/01639625.2018.1479919>
- Keall, M., & Newstead, S. (2007). *Four-wheel drive vehicle crash involvement risk, rollover risk and injury rate in comparison to other passenger vehicles: estimates based on Australian and New Zealand crash data and on New Zealand motor vehicle register data*.
- Keall, M., & Newstead, S. (2009). Induced Exposure Estimates of Rollover Risk for Different Types of Passenger Vehicles. *Traffic Injury Prevention*, 10(1), 30–36. <https://doi.org/10.1080/15389580802383117>
- Kessler, G., & Reinecke, J. (2021). Dynamics of the Causes Of Crime: a Life-Course Application of Situational Action Theory for the Transition from Adolescence to Adulthood. *Journal of Developmental and Life-Course Criminology*, 7(2), 229–252. <https://doi.org/10.1007/s40865-021-00161-z>
- Love, S., Truelove, V., Rowland, B., Kannis-Dymand, L., & Davey, J. (2022). Is all high-risk behaviour premeditated? A qualitative exploratory approach to the self-regulation of habitual and risky driving behaviours. *Transportation Research Part F: Traffic Psychology and Behaviour*, 90, 312–325. <https://doi.org/10.1016/j.trf.2022.09.002>
- National Road Safety Strategy. (2021). *Fact sheet: Risky road use*. Australian Government. <https://www.roadsafety.gov.au/nrss/fact-sheets/risky-road-use>
- Nemme, H. E., & White, K. M. (2010). Texting while driving: Psychosocial influences on young people's texting intentions and behaviour. *Accident Analysis & Prevention*, 42(4), 1257–1265. <https://doi.org/10.1016/j.aap.2010.01.019>
- Piquero, A., & Pogarsky, G. (2002). *Beyond Stafford and Warr's Reconceptualization of Deterrence Personal and Vicarious Experiences, Impulsivity, and Offending Behavior*. <https://doi.org/10.1177/002242780203900202>
- Rose, C. (2022). To Speed or Not to Speed: Applying Situational Action Theory to Speeding Behavior. *Deviant Behavior*, 1–18.
- Stevens, N. J., & Salmon, P. M. (2015). All responsibility, no care: A systems analysis case study of beach driving stakeholders in Australia. *Procedia Manufacturing*, 3, 2605–2612. <https://doi.org/10.1016/j.promfg.2015.07.588>
- Stevens, N. J., & Salmon, P. M. (2016). Sand, surf and sideways: A systems analysis of beaches as complex roadway environments. *Safety Science*, 85, 152–162. <https://doi.org/10.1016/j.ssci.2016.01.009>
- Truelove, V., Freeman, J., Szogi, E., Kaye, S.-A., Davey, J., & Armstrong, K. (2017). *Beyond the threat of legal sanctions: What deters speeding behaviours?* 50, 128–136. <https://doi.org/10.1016/j.trf.2017.08.008>
- Watson, B., & Freeman, J. (2007). Perceptions and Experiences of Random Breath Testing in Queensland and the Self-Reported Deterrent Impact on Drunk Driving. *Traffic Injury Prevention*, 8(1), 11–19. <https://doi.org/10.1080/15389580601027360>

Watson, B., Watson, A., Siskind, V., Fleiter, J., & Soole, D. (2015). Profiling high-range speeding offenders: Investigating criminal history, personal characteristics, traffic offences, and crash history. *Accident Analysis & Prevention*, *74*, 87–96. <https://doi.org/10.1016/j.aap.2014.10.013>

Wikström, P. O. H. (2014). Why crime happens: A situational action theory. *Analytical Sociology*, 71–94. <https://doi.org/10.1002/9781118762707.ch03>

Wikström, P. O. H. (2019). *Situational Action Theory: Toward a Dynamic Theory of Crime and Its Causes*. <https://doi.org/10.1093/acrefore/9780190264079.013.456>

Wikström, P. O. H., & Treiber, K. (2015). Situational theory: The importance of interactions and action mechanisms in the explanation of crime. In *The handbook of criminological theory* (pp. 415–444). <https://doi.org/10.1002/9781118512449.ch22>