Understanding use of consumer protection tools among Internet gambling customers: Utility of the Theory of Planned Behavior and Theory of Reasoned Action

Abstract

Consumer protection tools such as activity statements, deposit limits, and temporary self-exclusion are provided by most Internet gambling websites to minimise gambling related harms through the prevention of problems and enhancement of controls for those at risk of disordered gambling. However, customer engagement with these tools is very low. Developing a theoretical framework to understand the reasons individuals use consumer protection tools is important to design strategies to increase uptake. Customers of Australian online wagering sites (N = 564) completed an online survey with a follow-up (N = 193) to assess whether the Theory of Planned Behaviour explained intention to use tools and actual behaviour with additional consideration of past tool use. Results showed that past tool use, attitudes and subjective norms, but not perceived behavioural control, were positively correlated with intention to use consumer protection tools. Intention to use the tools prospectively predicted actual tool use. The study validates past behaviour as a predictor of intention, and intention representing a significant predictor of future behaviour. The Theory of Reasoned Action (without the inclusion of perceived behavioural control), rather than Theory of Planned Behaviour, appears to be a suitable conceptual model to understand consumer protection tool use for Internet wagering websites. Use and application of consumer protection tools on gambling websites is not perceived as effortful, but under volitional control and straightforward. Positively influencing individual attitudes, perceived views of others and past tool use could increase online wagering customers' use of consumer protection tools.

Keywords: responsible gambling, consumer protection, internet gambling, self-exclusion, prevention, harm minimisation

1 Introduction

Internet gambling is growing in popularity worldwide and represents an increasing share of the global gambling market (O'Farrell, 2015; Pilling, 2019). In recognition of the limitations associated with prohibition in providing consumer protection, to ensure games are fair, and gather tax, 84 countries now offer legalised Internet gambling in various forms (Mordor Intelligence, 2018). Licensing conditions limit the types of activities that can be provided. For example, in Australia, only wagering and lottery products can be provided via interactive channels (Department of Social Services, 2017). Most gambling regulators also require operators to provide a range of consumer protection (also referred to as responsible gambling; deposit limits, breaks in play, messaging, activity statements) tools and resources in recognition of the potential harms related to this mode of gambling. Consumer protection tools are intended to be used by a broad range of Internet gambling customers to prevent the development of problems and remain in control of their gambling (Ladouceur, Blaszczynski, Shaffer, & Fong, 2016). However, very few customers engage with these protection tools necessitating further efforts to enhance their uptake. Identifying the barriers to the use of consumer protection tools is a complex undertaking given the multiple personal and environmental factors involved. One potential approach is to apply the Theory of Planned Behaviour (TPB) model as an appropriate conceptual framework to understand motivations for engaging with consumer protection tools and the prediction of actual tool use.

It is increasingly recognised that gambling-related harm is not restricted to those who meet clinical criteria for gambling disorders or those experiencing severe gambling-related harms (Weinstock, April, & Kallmi, 2017). An Australian study found that 7.9% of Australian adults experienced one or more gambling-related problems in 2015 (Armstrong & Carroll, 2017). Similarly, a Canadian study found that subclinical gamblers experience more psychological dysfunction than healthy individuals across several major domains (Weinstock et al., 2017). Consequently, it is important for all gamblers to engage with tools to assist them to remain in control of their gambling and sustain this at an affordable and personally appropriate level to avoid the experience of gambling harms and potential development of problems.

Many gamblers lose track of time and money during Internet gambling, contributing to harms (Hing et al., 2015; Ladouceur & Sévigny, 2009; Nower & Blaszczynski, 2010; Stewart & Wohl, 2013). Consumer protection tools such as activity statements, deposit limits, and temporary self-exclusion or time-outs have been designed to address this loss of control and encourage self-awareness in players to help promote responsible gambling to avoid harm.

Limited studies have examined the effectiveness of these tools in preventing and minimising gambling-related harms. Nonetheless, self-report studies and analyses of consumer data suggest that consumers perceive these tools as helpful in assisting them to keep their expenditure within limits, and to maintain self-control (Dragicevic, Percy, Kudic, & Parke, 2015; Griffiths, Harris, & Auer, 2016; Griffiths, Wood, & Parke, 2009a; Ladouceur, Shaffer, Blaszczynski, & Shaffer, 2017; Monaghan, 2009). A survey of 564 Australian online wagering customers found that customers who used consumer protection tools were mostly satisfied with these and the majority of those who used deposit limits and time-outs thought their gambling had changed as a result (Gainsbury, Angus, Procter, & Blaszczynski, 2019).

Despite their potential to reduce harms, there is little research specifically on the correlates of consumer protection tool use; however, Forsström et al. (2017) suggest that tool use is likely dependent on various factors including attitudes towards the tools and gambling behaviours. Moreover, while consumer protection tools are intended to assist gamblers, they have been developed in the absence of clear conceptual frameworks. Although little empirical research on gamblers' attitudes and behaviour towards using consumer protection tools exists, studies suggest that attitudes toward online consumer protection tools are positive (Gainsbury, Parke, & Suhonen, 2013; Griffiths, Wood, & Parke, 2009; Ivanova, Rafi, Lindner, & Carlbring, 2019). To date, no research has explored social pressure and perceived behavioural control in the context of consumer protection tool use. A pressing need exists to understand the attitudes that underlie tool use and the impact of attitudes on actual tool use, to ensure that these are effective in minimising gambling-related harms.

1.1 Theory of Planned Behaviour

The Theory of Planned Behaviour (Ajzen, 1988; Fishbein & Ajzen, 2010) has been used extensively to predict social and health behaviours and addiction, including gambling-related behaviours (Guo et al., 2007; Huchting, Lac, & LaBrie, 2008; Kuther, 2002; Lee, Chen, Song, & Lee, 2014; Martin et al., 2010; McEachan, Conner, Taylor, & Lawton, 2011; Moore & Ohtsuka, 1999; Neighbors et al., 2007; Thrasher, Andrew, & Mahony, 2007). The TPB suggests that a person's intention to enact a behaviour is the main predictor for exhibiting that behaviour (Fishbein & Ajzen, 2010). Intentions are derived from three factors. Firstly, whether the person has a favourable or unfavourable attitude towards the behaviour of interest determines engagement. The more favourable the attitude towards the behaviour, the more likely the individual is to perform it. Secondly, subjective norms predict intention. This refers to how much the person feels social pressure to enact a behaviour. If an individual perceives that significant others endorse (or disapprove of) a behaviour, they are more (or

less) likely to enact that behaviour. Thirdly, perceived behavioural control (PBC), which is whether the person feels in control of the action in question, drives behaviour. PBC was added to the original Theory of Reasoned Action (TRA) model (Ajzen, 1985; Ajzen & Fishbein, 1980) to account for people's non-volitional behaviour (Fishbein & Ajzen, 2010). The TPB has been found to improve on the TRA's predictability of intention and behaviour (Armitage & Conner, 2001) in health (Albarracín, Johnson, Fishbein, & Muellerleile, 2001; Albarracín, Kumkale, & Johnson, 2004; Armitage & Conner, 2001; Cooke & French, 2008; Godin & Kok, 1996; Hagger, Chatzisarantis, & Biddle, 2002; Hausenblas, Carron, & Mack, 1997; Sheeran & Taylor, 1999), gambling (Dahl et al., 2018; Martin et al., 2010; Moore & Ohtsuka, 1997; Neighbors et al., 2007) and online (Burns & Roberts, 2013) domains. Therefore, applying the TPB to understand online consumer protection tool use is appropriate to explore the relevant factors motivating engagement with the tools However, evaluation of this is important as previous studies have failed to find support for the role of perceived behavioural control in predicting gambling intention (Flack & Morris, 2017b; Flack & Morris, 2017; Oh & Hsu, 2001; Walker, Courneya, & Deng, 2018; Wu & Tang, 2012).

A meta-analysis of the TPB in health domains found that past engagement in a behaviour was also a significant predictor of intention (McEachan et al., 2011). Similarly, the TPB has been extended showing that past behaviour predicts gambling intention (Dahl, Tagler, & Hohman, 2018; Lee et al., 2014). As such, the TPB, with the addition of past use of consumer protection tools was deemed an appropriate conceptual framework for understanding the socio-cognitive factors underlying online wagerers' intentions and behaviour related to tools.

The current study represents the first empirical investigation applying the TPB in the context of online wagerers' consumer protection tool use. The study employs a follow-up component to determine whether intention to use the consumer protection tools predicts actual behaviour. This is an improvement on past studies of health behaviours using the TPB model which are limited by their lack of follow-up evaluation (Ajzen, 2005). Understanding which TPB factors are related to gamblers' intentions to use the consumer protection tools, could suggest ways to increase the use of the tools amongst online wagerers, helping to ameliorate harm. Specifically, we hypothesised that 1) subjective norms, attitudes, perceived behavioural control and past use of consumer protection tools would predict intention to use tools, and 2) intention to use tools would predict subsequent tool use.

2 Methods

2.1 Respondents

Six Australian online wagering operators each sent a randomly selected sample of 2,000 account holders an email invitation to take part in the study. As theoretically individuals could have been invited to complete the survey by more than one operator the survey detected IP addresses to block dual responses and participants were instructed to only complete the survey once if they received multiple invitations. Out of the 12,000 account holders initially contacted, 3,595 opened the email outlining the study and linking to the online survey. Contributing to the low response rate was the low rate of initially sent emails opened; for the six operators the email opening rates were 38%, 25%, 45%, 26%, 41%, and 5%. The baseline survey asked respondents whether they could be sent a follow-up survey, which triggered an invitation to the follow-up survey two weeks later. A total of 734 respondents began the baseline survey. Respondents were excluded from analyses if they failed to complete the survey (n = 118), had not engaged in online wagering within the past 12 months (n = 4), or failed of two or more attention check items (n = 48). Slightly under one-third of the baseline respondents were invited and began the follow-up survey (n = 205). Respondents with incomplete or insufficient or incomplete responses (n = 7), were removed from the follow-up data, as were respondents who had been removed from the baseline data (n = 5). The final sample consisted of 564 respondents for the baseline survey, and 193 respondents (34.2% of baseline respondents). All procedures were approved by the University of Sydney Human Research Ethics Committee. Respondents who completed both baseline and follow-up surveys were mostly male (90.2%) and aged between 19 and 83 (M = 46.71, SD = 15.51).

2.2 Materials

2.2.1 Baseline Survey

2.2.1.1 Gambling behaviours. Respondents indicated the number of active online wagering accounts they had, their approximate monthly expenditure in AUD across these accounts, and what types of gambling activities they had participated in over the previous 12 months (e.g., lottery, casino games). Number of accounts was measured using an ordinal item (e.g., "1", "2", "3-4", "5-6", "More than 6"), as was expenditure ("$0", "$1-25", "$26-50", "$51-75", "$76-100", "$101-150", "$151-200", "$201-300", "$301-500" , "$501-1000", "$1001-2000", "$2001-5000", "$5001+"). The sum of affirmative responses to items regarding participation in gambling activities was calculated, and used as a measure of number of gambling activities engaged in.

2.2.1.2 Use of consumer protection tools. Respondents indicated their past use of three different consumer protection tools, activity statements, deposit limits, and time-outs (temporary self-exclusion ranging from 24 hours to six months). Total score indicated the number of tools used. As there was some variation between operators in how the tools were described, the initial instructions included all the relevant terms across operators to avoid confusion or misunderstanding.

2.2.1.3 Theory of Planned Behaviour questionnaire. TPB items were adapted from a previously validated health questionnaire (Francis et al., 2004), and framed about the use of consumer protection tools (e.g., "I intend to use the Activity Statement, Deposit Limits, or Take a Break tools in the next six months"). Three items were used for each of the following domains, intention, attitudes, subjective norms, and perceived behavioural control. Responses to intention, subjective norms, and perceived behavioural control items were made on 7-point bipolar scales (e.g., 1 = *strongly disagree* to 7 = *strongly agree*), while responses to attitude items were made on 7-point scales with bipolar adjectives (e.g., 1 = *harmful* to 7 = *beneficial*). To minimise fatigue and drop-out rates, respondents were asked about their use of all three tools rather than each tool separately. Mean scores were created for each scale, with higher scores indicating stronger intention to use the consumer protection tools, more positive attitudes towards using the tools, stronger perceived approval of using tools, and feeling more in control of tool use. Internal reliability ranged from poor (perceived behavioural control, $\alpha = .492$) and acceptable (subjective norms, $\alpha = .608$) to good (attitudes, $\alpha = .741$) and excellent (intention, $\alpha = .931$).

2.2.1.4 Attention check items. Five attention check items were distributed equally throughout the survey to identify non-conscientious or random responders (Marjanovic, Struthers, Cribbie, & Greenglass, 2014).

2.2.2 Follow-Up Survey

2.2.2.1 Recent behaviour. Three items measured respondents' use of each of the consumer protection tools in the previous two-weeks. We calculated the total number of tools used by each respondent. However, because very few respondents had used more than one tool (5.7%), we created a binary variable that coded for any tool use.

2.3 Statistical Analyses

Associations between the count of tools used, TPB variables, and gambling behaviours were explored using Spearman's Rho correlations. Multiple linear regressions examined whether these variables predicted tool use intention while statistically adjusting for

each other, and with the subsequent addition of past tool use as a covariate. Adjusted R^2 is reported as a measure of explained variance. TPB variables not significantly correlated with intention were excluded from these regressions. A binary logistic regression was used to examine the extent to which intentions to use tools and past tool use reported in the baseline survey predicted subsequent tool use. Nagelkerke pseudo-R^2 is reported as a measure of explained variance for the binary logistic regression. Variance inflation factors for all regressions were < 1.16. The alpha for all statistical tests was set at 0.05. Correlation coefficients may be interpreted according to the following criteria (small $r > 0.10$ | medium $r > 0.24$ | large > 0.37). For Mann-Whitney U tests, r has been used as an effect size (small > 0.10 | medium > 0.30 | large > 0.50). Data were pre-processed and analysed in SPSS v25 (IBM Corp., 2017).

3 Results

3.1 Baseline

Most respondents had used a single tool (70.2%, $n = 396$), while 16.0% ($n = 90$) used two, and 3.2% ($n = 18$) all three tools. One-tenth of respondents had not used any of the tools (10.6%, $n = 60$). Summary statistics for the total number of tools used are presented in Table 1. Subjective norms, attitudes, and the total number of tools previously used were all significantly positively correlated with the intention to use responsible gambling tools. Perceived behavioural control, however, was not significantly correlated with tool use intention, and was therefore excluded from the regression analyses.

The overall model was significant ($F(2,561) = 90.31$, $p < .001$), with both subjective norms and attitudes uniquely predicting tool use intention (Table 2).The second model was significant ($F(4,560) = 73.08$, $p < .001$); subjective norms, attitudes, and past tool use were all unique significant predictors of tool use intention. The inclusion of past tool use in the model significantly increased the variance in consumer protection tool use intention that was accounted for by the regression ($F(1,560) = 29.46$, $p < .001$).

Table 1. Descriptive Statistics and Bivariate Correlations

Variable	Mean	Std.D	Min	Max	N	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Past Tool Use	1.12	0.62	0	3	564	-								
2. Follow-Up Tool Use	0.73	0.61	0	3	193	0.31**	-							
3. Attitude	5.74	1.23	1	7	564	0.12**	0.06	-						
4. Subjective Norms	2.26	1.31	1	6.67	564	0.20**	0.23**	0.10*	-					
5. PBC	6.28	0.96	2.33	7	564	0.00	-0.01	0.27**	-0.36**	-				
6. Intention	3.92	2.04	1	7	564	0.29**	0.27**	0.36**	0.37**	0.00	-			
7. # Accounts	3	1	1	5	564	0.03	0.03	-0.06	0.17**	-0.07	-0.09*	-		
8. $ Wagering	6	3	1	13	564	0.01	0.05	-0.09*	0.06	-0.11*	-0.03	0.37**	-	
9. # Activities	3.67	1.63	0	8	564	0.03	-0.13	-0.04	0.04	-0.06	-0.01	0.05	0.07	-

Note. *$p <.05$. **$p <.01$. PBC = perceived behavioural control.

Table 2. Regression Models Predicting Consumer Protection Tool Use Intention for 564 Respondents

Variable	Adj R^2	b	SE b	b 95% CI Lower	b 95% CI Upper	β	t	p
Model 1	0.24							
Constant		-0.45	0.37	-1.17	0.28		-1.21	0.225
Attitudes		0.56	0.06	0.44	0.68	0.34	9.15	<0.001
Subjective Norms		0.51	0.06	0.39	0.62	0.32	8.77	<0.001
Model 2	0.28							
Constant		-0.88	0.37	-1.61	-0.16		-2.39	0.017
Attitudes		0.53	0.06	0.41	0.65	0.32	8.79	<0.001
Subjective Norms		0.46	0.06	0.35	0.57	0.29	8.02	<0.001
Past Tool Use		0.66	0.12	0.42	0.89	0.20	5.43	<0.001

3.2 Follow-Up

Rates of reported tool use declined from the baseline to the follow-up survey. At baseline, 69.4% ($n = 134$) of the 193 respondents completing the follow-up survey had used one tool, 17.1% ($n = 33$) had used two tools, and 3.6% ($n = 7$) had used three tools. Approximately one-tenth (9.8%, $n = 19$) had not used any consumer protection tools. In comparison, in the two weeks prior to the follow-up survey, 59.6% ($n = 115$) had used a single tool, 4.1% ($n = 8$) had used two tools, and 1.6% ($n = 3$) had used all three tools. Notably, 34.7% ($n = 67$) had not used any of the three tools.

Due to the small proportion of respondents having used more than one tool at follow-up, we elected to examine whether tool use intention predicted the likelihood of having used *any* tool, rather than the total number of tools used. Consistent with our hypothesis, the overall model was significant ($\chi2$ (2, $N = 193$) = 19.20, $p < 0.001$, Nagelkerke pseudo-R^2 = 0.13; Table 3). Greater intention to use tools and greater past experience with tools both uniquely predicted an increased likelihood of having had used any consumer protection tools in the two-weeks preceding the follow-up survey. The overall accuracy of the model was 67.9%. Although the classification accuracy of non-use of tools was only 13.4%, the accuracy for tool use was 96.8%.

Table 3. Binary Logistic Regression Model Predicting Consumer Protection Tool Use for 193 Respondents

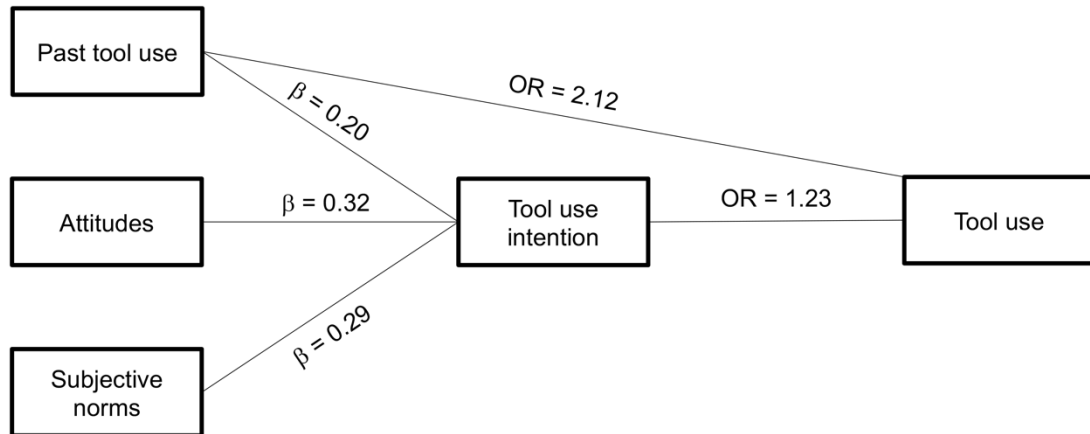| Variable	b	$SE\ b$	Odds ratio	95% CI for Odds ratio		Wald	p
				Lower	Upper		
Constant	-0.95	0.41	0.39			5.40	0.020
Intention	0.21	0.08	1.23	1.06	1.44	7.01	0.008
Past Tool Use	0.75	0.31	2.12	1.16	3.86	5.98	0.014

Figure 1. Simplified depiction of the model prospectively predicting the use of consumer protection tools. Model coefficients were derived from a regression model that predicted intention to use tools ($N = 564$), and a separate model that predicted whether respondents had used any tools in the two weeks prior to the follow-up survey ($N = 193$).

3.3 Attrition Analyses

The results reported above may be distorted by sample attrition. That is, respondents who completed both the baseline and follow-up surveys may have differed systematically from those who only completed the baseline survey. Additional exploratory analyses were conducted to compare these groups of respondents on measures taken at baseline (Table 4). Mann-Whitney U tests indicated that subjective norms ($U = 30431.50$, $Z = -2.98$, $p = 0.003$, $r = 0.13$), perceived behavioural control ($U = 30189.00$, $Z = -3.23$, $p = 0.001$, $r = 0.14$), and number of active online wagering accounts ($U = 31246.50$, $Z = -2.55$, $p = 0.011$, $r = 0.11$) were slightly but significantly lower for respondents who had completed both surveys compared to respondents who only completed the baseline survey. There were no significant differences between these respondents for tool use intention ($U = 34942.50$, $Z = -0.47$, $p = 0.639$, $r = 0.02$), attitudes towards tools ($U = 32882.00$, $Z = -1.61$, $p = 0.107$, $r = 0.07$), past tool use ($U = 34667.50$, $Z = -0.77$, $p = 0.443$, $r = 0.03$), online wagering expenditure ($U = 35716.00$, $Z = -0.05$, $p = 0.963$, $r < 0.00$), or total number of activities gambled on ($U = 34873.00$, $Z = -0.52$, $p = 0.606$, $r = 0.02$).

Table 4. Descriptive Statistics for Respondents that Completed or Did Not Complete Follow-Up Survey

Variable	Follow-Up = Yes N = 193				Follow-Up = No N = 371			
	Mean	Std. D	Min	Max	Mean	Std. D	Min	Max
Past Tool Use	1.15	0.63	0	3	1.10	0.61	0	3
Attitude	5.88	1.10	2	7	5.66	1.28	1	7
Subjective Norms	2.05	1.21	1	5.33	2.37	1.34	1	6.67
PBC	6.47	0.80	3	7	6.18	1.02	2.33	7
Intention	3.86	2.12	1	7	3.95	2.00	1	7
# Accounts	3	1	1	5	3	1	1	5
$ Wagering	6	4	1	13	6	3	1	13
# Activities	3.64	1.63	1	8	3.69	1.63	0	8

Note. PBC = perceived behavioural control.

4 Discussion

This paper aimed to advance conceptual understanding of the factors motivating online wagering customers to engage with consumer protection tools, using the theoretical TPB framework. It is the first study to examine the predictive values of attitudes, subjective norms, behavioural control, and past tool use on engagement with gambling consumer protection tools. As hypothesised, attitudes and subjective norms predicted intention to use tools. Moreover, these were statistically independent of past-tool use, which also predicted intentions. Our second hypothesis was supported as intention to use tools prospectively predicted tool use at a later point, again independently of past tool use. However, contrary to our hypothesis, perceived behavioural control did not predict tool use intention.

The TPB (Fishbein & Ajzen, 2010) was originally deemed more appropriate than the TRA (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) due to the prior application of the TPB in health-related (Albarracín et al., 2001; Albarracín et al., 2004; Armitage & Conner, 2001; Cooke & French, 2008; Godin & Kok, 1996; Hagger et al., 2002; Hausenblas et al., 1997; Sheeran & Taylor, 1999), gambling (Dahl et al., 2018; Martin et al., 2010; Moore & Ohtsuka, 1997; Neighbors et al., 2007) and online (Burns & Roberts, 2013) domains. However, results of the current study suggest that the traditional TRA model (without the inclusion of perceived behavioural control) is more suitable for understanding the factors underlying consumer protection tool use. Behavioural control has been shown to be important in understanding behaviours such as gambling or tobacco cessation where there are constraints on control (Guo et al., 2007; Martin, Nelson, & Gallucci, 2016). The current study suggests that online wagering customers perceive use of consumer protection tools to be under volitional control and not effortful. Although the tools are often only available in

specific sections of online wagering sites, they are relatively straightforward to use, as such, there is no need for strategies designed to emphasise the ease of use of tools in an effort to encourage tool uptake.

This study's findings imply that consumer protection tool use could be best studied within the framework of the TRA rather than the TPB. Previous research shows that most gamblers hold positive views towards consumer protection tools (Gainsbury et al., 2013;Griffiths et al., 2009b; Ivanova et al., 2019). However, low subjective norm scores were found in the current study, indicating that respondents believe important people in their lives do not deem the tools as valuable.

Interventions should focus on publicising the high positive attitudes towards consumer protection tools, as online gamblers are likely unaware and unable to know others' attitudes towards the tools, due to the privacy online gambling affords players. Publicising positive attitudes towards the tools may enhance normalisation of tool use amongst all online wagering customers and encourage greater uptake of the tools. This is consistent with a behavioural economics approach in terms of increasing perceptions of social norms to influence behavioural change (Gainsbury, Tobias-Webb, & Slonim, 2018). It is important to take efforts to reduce the perception that consumer protection tools are only for those with gambling problems (Griffiths et al., 2009b; Wood & Griffiths, 2008) and encourage their use by the broad population of online wagering customers as a way to remain in control and facilitate sustainable levels of gambling.

The second major implication is the extension of the TRA by including past use of tools in predicting intention to use consumer protection tools. Intention explained around 13% of variance in future use and because rates of tool use decreased between baseline and follow-up, the stated intention to use the tools may be somewhat protective against this decrease. Interventions should encourage ongoing tool use among previous users and broaden their use of one tool, such as activity statements, to more restrictive tools, such as deposit limits, to enhance the extent to which individuals are in control of their expenditure. However, it is also possible that by reminding respondents that they have previously used consumer protection tools, this may enhance stated intentions. Nonetheless, this impact could be used strategically by reminding those customers who have previously used tools of this, in an effort to encourage reengagement if they have abstained from ongoing tool use.

Importantly, the study found that intention to use consumer protection tools is predictive of actual tool use, which has not been previously tested. This is a significant finding as many studies of gamblers focus on behavioural intention without the opportunity

to measure subsequent behaviour. An alternative explanation to explain the association between intention and actual tool use is that participation in the study and stated intention to use tools impacted behaviour. Future research should examine actual tool use behaviour using data from Internet gambling customer accounts to determine whether this is predictive of future use.

The limitations of the study must be noted; the self-reported information and self-presentational biases may have affected the validity and reliability of the data collected (Dahl et al., 2018; Gaes, Kalle, & Tedeschi, 1978). The survey referenced 'gambling tools' rather than using terms 'responsible gambling' or 'consumer protection' in an effort to avoid bias. As the tools are labelled with different terms across the various websites and although the varied terms were included at the initial description, the terms used throughout the survey may have impacted perceptions and reporting of tool use. The sample was self-selected from a randomly selected subset of online wagering customers, most of whom did not open the email to view the recruitment information and, as such, was not representative of the broader population of online wagering customers. Future research should recruit a larger and more representative sample of online gambling customers. Research is needed to design and evaluate interventions to influence attitudes and subjective norms and measure behavioural change among a broader population of Internet gambling customers to overcome the limitations of self-selected populations and self-report data. Importantly, this study did not examine the impact of consumer protection tool use on gambling behaviour or the experience of gambling-related harms. There is limited evidence regarding the effectiveness of these tools as a harm reduction measure. Future research is needed, including analysis of actual behavioural data, to indicate that increased uptake of consumer protection tools prevents and minimises gambling harms.

Nonetheless, the current study has several strengths, including the recruitment of a sample from across six wagering operators, whereas previous research on attitude towards consumer protection tools are based on customers from a single online operator (Griffiths et al., 2009b; Ivanova et al., 2019). Although it did not predict intention or behaviour, testing the role of perceived behavioural control was important to demonstrate that this is not an apparent factor influencing consumer protection tool use. The inclusion of a follow-up to measure behaviour is an improvement on many TRA/TPB studies, which are limited by their lack of evaluation of behaviour (Ajzen, 2005).

Consumer protection tools offer a promising practical and inexpensive solution to growing concerns about the experience of gambling-related harms among customers of

Internet gambling sites. However, there is little theoretical or empirical evidence to guide the development of effective consumer protection tools or strategies to encourage their uptake and use. This study demonstrates that online wagering customers' use of consumer protection tools is influenced by individual attitudes, perceived views of others and past tool use, consistent with the extended TRA conceptual model. The findings indicate that the TRA is a more suitable model to explain tool use than the TPB. This research is the first attempt to understand the factors that influence tool use and provides important insights into the variables that should be targeted in an effort to encourage uptake and engagement with these tools, to reduce gambling-related harms.

References

Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior. In J. Kuhl & J. Beckmann (Eds.), *Action Control: From Cognition to Behavior* (pp. 11–39). https://doi.org/10.1007/978-3-642-69746-3_2

Ajzen, I. (1988). Attitudes. In W. E. Craighead & C. B. Nemeroff (Eds.), *The Corsini Encyclopedia of Psychology and Behavioral Science* (pp. 150–152). New York: John Wiley & Sons.

Ajzen, I. (2005). *Attitudes, Personality, and Behavior*. McGraw-Hill Education (UK).

Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. Retrieved from https://trove.nla.gov.au/version/10747681

Albarracín, D., Johnson, B. T., Fishbein, M., & Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. *Psychological Bulletin*, *127*(1), 142–161. https://doi.org/10.1037/0033-2909.127.1.142

Albarracín, D., Kumkale, G. T., & Johnson, B. T. (2004). Influences of social power and normative support on condom use decisions: A research synthesis. *AIDS Care*, *16*(6), 700–723. https://doi.org/10.1080/09540120412331269558

Armitage, C. J., & Conner, M. (2001). Efficacy of the Theory of Planned Behaviour: A meta-analytic review. *British Journal of Social Psychology*, *40*(4), 471–499. https://doi.org/10.1348/014466601164939

Armstrong, A., & Carroll, M. (2017). *Gambling Activity in Australia*. Retrieved from Australian Institute of Family Studies website: https://aifs.gov.au/agrc/publications/gambling-activity-australia

Burns, S., & Roberts, L. (2013). Applying the Theory of Planned Behaviour to predicting

    online safety behaviour. *Crime Prevention and Community Safety*, *15*(1), 48–64.

    https://doi.org/10.1057/cpcs.2012.13

Cooke, R., & French, D. P. (2008). How well do the theory of reasoned action and theory of

    planned behaviour predict intentions and attendance at screening programmes? A

    meta-analysis. *Psychology & Health*, *23*(7), 745–765.

    https://doi.org/10.1080/08870440701544437

Dahl, E., Tagler, M. J., & Hohman, Z. P. (2018). Gambling and the Reasoned Action Model:

    Predicting Past Behavior, Intentions, and Future Behavior. *Journal of Gambling*

    Studies, *34*(1), 101–118. https://doi.org/10.1007/s10899-017-9702-6

Department of Social Services. (2017, May). *National Consumer Protection Framework for*

    Online Wagering - Regulation Impact Statement for Consultation. Australian

    Government.

Dragicevic, S., Percy, C., Kudic, A., & Parke, J. (2015). A descriptive analysis of

    demographic and behavioral data from Internet gamblers and those who self-exclude

    from Online gambling platforms. *Journal of Gambling Studies*, *31*(1), 105–132.

    https://doi.org/10.1007/s10899-013-9418-1

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior : An introduction to*

    theory and research. Retrieved from https://trove.nla.gov.au/version/26117886

Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action*

    approach. New York: Psychology Press.

Flack, M., & Morris, M. (2017a). Gambling-Related Beliefs and Gambling Behaviour:

    Explaining Gambling Problems with the Theory of Planned Behaviour. *International*

    Journal of Mental Health and Addiction. https://doi.org/10.1007/s11469-015-9611-9

Flack, M., & Morris, M. (2017b). The temporal relationship between gambling related beliefs and gambling behaviour: a prospective study using the theory of planned behaviour. *International Gambling Studies*. https://doi.org/10.1080/14459795.2017.1360929

Flack, Mal, & Morris, M. (2017). The temporal relationship between gambling related beliefs and gambling behaviour: A prospective study using the theory of planned behaviour. *International Gambling Studies*, *17*(3), 508–519. https://doi.org/10.1080/14459795.2017.1360929

Forsström, D., Jansson-Fröjmark, M., Hesser, H., & Carlbring, P. (2017). Experiences of Playscan: Interviews with users of a responsible gambling tool. *Internet Interventions*, *8*, 53–62. https://doi.org/10.1016/j.invent.2017.03.003

Francis, J., Eccles, M. P., Johnston, M., Walker, A. E., Grimshaw, J. M., Foy, R., … Bonetti, D. (2004). *Constructing questionnaires based on the theory of planned behaviour: A manual for health services researchers*. Retrieved from http://openaccess.city.ac.uk/1735/1/TPB%20Manual%20FINAL%20May2004.pdf

Gaes, G. G., Kalle, R. J., & Tedeschi, J. T. (1978). Impression management in the forced compliance situation: Two studies using the bogus pipeline. *Journal of Experimental Social Psychology*, *14*(5), 493–510. https://doi.org/10.1016/0022-1031(78)90045-8

Gainsbury, S. M., Angus, D. J., Procter, L., & Blaszczynski, A. (2019). Use of Consumer Protection Tools on Internet Gambling Sites: Customer Perceptions, Motivators, and Barriers to Use. *Journal of Gambling Studies*. https://doi.org/10.1007/s10899-019-09859-8

Gainsbury, S., Parke, J., & Suhonen, N. (2013). Consumer attitudes towards Internet gambling: Perceptions of responsible gambling policies, consumer protection, and regulation of online gambling sites. *Computers in Human Behavior*, *29*(1), 235–245. https://doi.org/10.1016/j.chb.2012.08.010

Gainsbury, S., Tobias-Webb, J., & Slonim, R. (2018). Behavioral economics and gambling: A new paradigm for approaching harm-minimization. *Gaming Law Review*, *22*(10), 608–617. https://doi.org/10.1089/glr2.2018.22106

Godin, G., & Kok, G. (1996). The Theory of Planned Behavior: A Review of its Applications to Health-Related Behaviors. *American Journal of Health Promotion*, *11*(2), 87–98. https://doi.org/10.4278/0890-1171-11.2.87

Griffiths, M. D., Harris, A., & Auer, M. (2016). What do gamblers think of responsible gambling tools? *Casino and Gaming International*, *26*, 65–70.

Griffiths, Mark D., Wood, R. T. A., & Parke, J. (2009a). Social Responsibility Tools in Online Gambling: A Survey of Attitudes and Behavior among Internet Gamblers. *CyberPsychology & Behavior*, *12*(4), 413–421. https://doi.org/10.1089/cpb.2009.0062

Griffiths, Mark D., Wood, R. T. A., & Parke, J. (2009b). Social Responsibility Tools in Online Gambling: A Survey of Attitudes and Behavior among Internet Gamblers. *CyberPsychology & Behavior*, *12*(4), 413–421. https://doi.org/10.1089/cpb.2009.0062

Guo, Q., Johnson, C. A., Unger, J. B., Lee, L., Xie, B., Chou, C.-P., … Pentz, M. (2007). Utility of the theory of reasoned action and theory of planned behavior for predicting Chinese adolescent smoking. *Addictive Behaviors*, *32*(5), 1066–1081. https://doi.org/10.1016/j.addbeh.2006.07.015

Hagger, M. S., Chatzisarantis, N. L. D., & Biddle, S. J. H. (2002). A Meta-Analytic Review of the Theories of Reasoned Action and Planned Behavior in Physical Activity: Predictive Validity and the Contribution of Additional Variables. *Journal of Sport and Exercise Psychology*, *24*(1), 3–32. https://doi.org/10.1123/jsep.24.1.3

Hausenblas, H. A., Carron, A. V., & Mack, D. E. (1997). Application of the Theories of Reasoned Action and Planned Behavior to Exercise Behavior: A Meta-Analysis.

Journal of Sport and Exercise Psychology, *19*(1), 36–51.

https://doi.org/10.1123/jsep.19.1.36

Hing, N., Cherney, L., Gainsbury, S. M., Lubman, D. I., Wood, R. T., & Blaszczynski, A. (2015). Maintaining and losing control during internet gambling: A qualitative study of gamblers' experiences. *New Media & Society*, *17*(7), 1075–1095. https://doi.org/10.1177/1461444814521140

Huchting, K., Lac, A., & LaBrie, J. W. (2008). An application of the Theory of Planned Behavior to sorority alcohol consumption. *Addictive Behaviors*, *33*(4), 538–551. https://doi.org/10.1016/j.addbeh.2007.11.002

IBM Corp. (2017). IBM SPSS Statistics (Version 25) [Macintosh]. Retrieved from https://www.ibm.com/analytics/spss-statistics-software

Ivanova, E., Rafi, J., Lindner, P., & Carlbring, P. (2019). Experiences of responsible gambling tools among non-problem gamblers: A survey of active customers of an online gambling platform. *Addictive Behaviors Reports*, *9*, 100161. https://doi.org/10.1016/j.abrep.2019.100161

Kuther, T. L. (2002). Rational decision perspectives on alcohol consumption by youth: Revising the theory of planned behavior. *Addictive Behaviors*, *27*(1), 35–47. https://doi.org/10.1016/S0306-4603(00)00161-1

Ladouceur, R., Blaszczynski, A., Shaffer, H. J., & Fong, D. (2016). Extending the Reno Model: Responsible Gambling Evaluation Guidelines for Gambling Operators, Public Policymakers, and Regulators. *Gaming Law Review and Economics*, *20*(7), 580–586. https://doi.org/10.1089/glre.2016.2074

Ladouceur, R., & Sévigny, S. (2009). Electronic gambling machines: Influence of a clock, a cash display, and a precommitment on gambling time. *Journal of Gambling Issues*, (23), 31–41. Retrieved from sih.

Ladouceur, R., Shaffer, P., Blaszczynski, A., & Shaffer, H. J. (2017). Responsible gambling:

A synthesis of the empirical evidence. *Addiction Research & Theory*, *25*(3), 225–235.

https://doi.org/10.1080/16066359.2016.1245294

Lee, J., Chen, C.-C., Song, H.-J., & Lee, C.-K. (2014). The Role of Responsible Gambling

Strategy and Gambling Passion in the Online Gamblers' Decision-Making Process:

Revising the Theory of Planned Behavior. *Journal of Gambling Studies*, *30*(2), 403–

422. https://doi.org/10.1007/s10899-013-9359-8

Marjanovic, Z., Struthers, C. W., Cribbie, R., & Greenglass, E. R. (2014). The Conscientious

Responders Scale: A New Tool for Discriminating Between Conscientious and

Random Responders. *SAGE Open*, *4*(3), 2158244014545964.

https://doi.org/10.1177/2158244014545964

Martin, R. J., Nelson, S. E., & Gallucci, A. R. (2016). Game On: Past Year Gambling,

Gambling-Related Problems, and Fantasy Sports Gambling Among College Athletes

and Non-athletes. *Journal of Gambling Studies*, *32*(2), 567–579.

https://doi.org/10.1007/s10899-015-9561-y

Martin, R. J., Usdan, S., Nelson, S., Umstattd, M. R., LaPlante, D., Perko, M., & Shaffer, H.

(2010). Using the theory of planned behavior to predict gambling behavior.

Psychology of Addictive Behaviors, *24*(1), 89–97. https://doi.org/10.1037/a0018452

McEachan, R. R. C., Conner, M., Taylor, N. J., & Lawton, R. J. (2011). Prospective

prediction of health-related behaviours with the Theory of Planned Behaviour: A

meta-analysis. *Health Psychology Review*, *5*(2), 97–144.

https://doi.org/10.1080/17437199.2010.521684

Monaghan, S. (2009). Responsible gambling strategies for Internet gambling: The theoretical

and empirical base of using pop-up messages to encourage self-awareness. *Computers

in Human Behavior*, *25*(1), 202–207. https://doi.org/10.1016/j.chb.2008.08.008

Moore, S. M., & Ohtsuka, K. (1999). The prediction of gambling behavior and problem

gambling from attitudes and perceived norms. *Social Behavior and Personality: An*

International Journal, *27*(5), 455–466. https://doi.org/10.2224/sbp.1999.27.5.455

Mordor Intelligence. (2018, July). Online Gambling Market Size, Share, Growth, research

Report (2018-23). Retrieved March 12, 2019, from

https://www.mordorintelligence.com/industry-reports/online-gambling-market

Neighbors, C., Lostutter, T. W., Whiteside, U., Fossos, N., Walker, D. D., & Larimer, M. E.

(2007). Injunctive Norms and Problem Gambling among College Students. *Journal of*

Gambling Studies, *23*(3), 259–273. https://doi.org/10.1007/s10899-007-9059-3

Nower, L., & Blaszczynski, A. (2010). Gambling motivations, money-limiting strategies, and

precommitment preferences of problem versus non-problem gamblers. *Journal of*

Gambling Studies, *26*(3), 361–372. https://doi.org/10.1007/s10899-009-9170-8

O'Farrell, B. (2015). *Review of Illegal Offshore Wagering*. Commonwealth of Australia

(Department of Social Services).

Oh, H., & Hsu, C. H. C. (2001). Volitional degrees of gambling behaviors. *Annals of Tourism*

Research. https://doi.org/10.1016/S0160-7383(00)00066-9

Pilling, L. (2019, January 17). Gambling: online share of the market. Retrieved April 18,

2019, from gbgc website: https://www.gbgc.com/news/gambling-online-share-of-the-

market?utm_medium=email&utm_campaign=GBGC%20Newsletter%20January%20

2019&utm_content=GBGC%20Newsletter%20January%202019+CID_a6500bfd8dea

53b619603944553ec09d&utm_source=Email%20marketing%20software&utm_term

=View%20graph

Sheeran, P., & Orbell, S. (1999). Augmenting the theory of planned behavior: Roles for

anticipated regret and descriptive norms. *Journal of Applied Social Psychology*.

https://doi.org/10.1111/j.1559-1816.1999.tb02298.x

Sheeran, P., & Taylor, S. (1999). Predicting Intentions to Use Condoms: A Meta-Analysis

and Comparison of the Theories of Reasoned Action and Planned Behavior1. *Journal*

of Applied Social Psychology, *29*(8), 1624–1675. https://doi.org/10.1111/j.1559-

1816.1999.tb02045.x

Stewart, M. J., & Wohl, M. J. A. (2013). Pop-up messages, dissociation, and craving: How

monetary limit reminders facilitate adherence in a session of slot machine gambling.

Psychology of Addictive Behaviors, *27*(1), 268–273. https://doi.org/10.1037/a0029882

Thrasher, R. G., Andrew, D. P. S., & Mahony, D. F. (2007). The Efficacy of the Theory of

Reasoned Action to Explain Gambling Behavior in College Students. *College Student*

Affairs Journal, *27*(1), 57–75.

Walker, G. J., Courneya, K. S., & Deng, J. (2018). Ethnicity, Gender, and the Theory of

Planned Behavior: The Case of Playing the Lottery. *Journal of Leisure Research*.

https://doi.org/10.1080/00222216.2006.11950077

Weinstock, J., April, L. M., & Kallmi, S. (2017). Is subclinical gambling really subclinical?

Addictive Behaviors, *73*, 185–191. https://doi.org/10.1016/j.addbeh.2017.05.014

Wood, R. T. A., & Griffiths, M. D. (2008). Why Swedish people play online poker and

factors that can increase or decrease trust in poker websites: A qualitative

investigation. *Journal of Gambling Issues*, *21*, 80–97.

Wu, A. M. S., & Tang, C. S. kum. (2012). Problem Gambling of Chinese College Students:

Application of the Theory of Planned Behavior. *Journal of Gambling Studies*.

https://doi.org/10.1007/s10899-011-9250-4