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# Harm profiles associated with low-risk gambling: Longitudinal analysis of three datasets

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## Final Report

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# 1. Executive summary

## 1.1. Background

Compared to other gambling risk categories as measured by Problem Gambling Severity Index (PGSI; non-problem, moderate risk, and problem gambling), low-risk gambling is likely to account for a disproportionately high burden of gambling harm on a population level. Limited longitudinal evidence indicates that low-risk gambling represents the most unstable gambling risk category, with movement in and out of this category more likely than stability over time, and that transitions may be more likely to less severe, compared to more severe levels of problem gambling. More information is needed about the profiles relating to low-risk gambling, specific gambling harms they experience, and key factors related to transitions to more or less severe levels of gambling. This information can be used to inform public health approaches targeting low-risk gambling that has the potential to prevent increases to more severe levels of gambling.

This project presents a secondary analysis of three population representative datasets of national level data, in order to better understand profiles related to low-risk gambling in the Australian population. It examines harm profiles of low-risk gamblers as defined by the PGSI. This project aimed to:

1. Establish harm profiles associated with low-risk gambling in the ACT and in Australia.
2. Identify demographic and psychosocial factors associated with gambling severity transitions from low-risk gambling.
3. Examine the impact of COVID-19 on gambling risk transitions for individuals in low-risk gambling groups.

## 1.2. Method

The current project used three datasets based on population representative surveys. Each dataset included gambling severity data measured by the Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001). We used the following three datasets: (1) ACT 2014 and 2019 Gambling Survey data; (2) Household Income and Labour Dynamics in Australia (HILDA) 2015 and 2018 waves; and (3) ANUpoll longitudinal dataset including multiple waves of data: pre-COVID (2018-2019), during COVID (2020-2021) and post-COVID (2022) data.

## 1.3. Findings

**The cross-sectional data** showed that between 2014 and 2023, low-risk gambling prevalence ranged between 3% and 7% in Australia. Individuals that engaged in low-risk gambling were characterised by younger age, male gender, lower levels of education, not having dependent children, in full-time or part-time employment, with above average levels of psychological distress. They also tended to endorse specific PGSI items: feeling guilty about gambling, going back on another day to win back the money they had lost, and betting more than they could afford to lose. In terms of gambling harm items (as measured by the Short Gambling Harm Screen, SGHS), the most frequently reported harms for low-risk gamblers were a reduction in spending money and in savings, and having regrets about gambling. Those in the higher end of PGSI gambling risk reported more psychological harms (i.e., feeling distressed).

**The longitudinal data** shows that over 60% of individuals in the low-risk gambling group transitioned to non-problem gambling or ceased gambling altogether in subsequent waves. Approximately one quarter of the low-risk gambling group remained in low-risk gambling, and one tenth transitioned to higher risk gambling. Furthermore, in data collected prior to COVID-19, the youngest (18-24) age group was most likely to increase in gambling severity over time, as compared to other age groups. Additionally, individuals that lived in lower socioeconomic areas were less likely to decrease their gambling severity over time than those who lived in less disadvantaged areas.

**During COVID-19**, more individuals in the low-risk group ceased gambling altogether compared to other timepoints. From 2021-2023 (post-COVID-19 transition), more individuals in the low-risk gambling group remained at low-risk for problem gambling compared to other timepoints. Reports of financial problems caused by gambling appears to be longitudinally associated with subsequent decreases in gambling in data collected before and after COVID-19, but **not** during COVID-19.

## 1.4. Conclusion

Targeting low-risk gambling with appropriate interventions and policy presents an efficient public health strategy. The current study provides new information that can be used to guide interventions for target populations and individuals before they move into more severe levels of gambling: specifically, those within younger age groups, those living in disadvantaged neighbourhoods and gamblers experiencing lower levels of financial harms.

## 2. Introduction

It is now well established that problem gambling and gambling harm have negative impacts at an individual, familial, and broader social level (Dowling et al., 2017; Flayelle et al., 2023; Muggelton et al., 2021; Hodgins, Stea & Grant, 2011). Because of the way gambling harm is distributed on a population level, those reporting the lowest levels of gambling harm account for the largest proportion of all gambling harm in absolute numbers, and therefore comprise the greatest burden of gambling harm in the general community (Browne et al., 2022). This group is not only the largest, but also the most 'unstable' gambling risk group, meaning that movement in and out of this category is more likely than stability in this group across time (Browne et al., 2017; Suomi et al., 2023). Most individuals in the higher risk groups begin their gambling at less problematic levels, which provides an ideal platform for prevention of gambling harm through the public health approach (Blank, Baxter, Woods, & Goyder, 2021). In addition, the COVID-19 global pandemic recently saw unique patterns in gambling transitions during and after the pandemic, particularly in Australia, where the current data was collected there were particularly strict social restriction measures in place for extended periods of time (Biddle, 2020; Suomi et al., 2023). These measures resulted in gambling venue closures particularly restricting high yield gambling activities such as casino and electronic gaming machine (EGM) gambling throughout 2020, 2021, and to some extent in early 2022 (Stobart & Duckett, 2022). In addition, the cancellation of sports, and racing events reduced the amount of sports betting opportunities available for the punters. Despite a wealth of research into problem gambling, evidence is scarce on individuals in the lower levels of gambling risk, including their harm profiles, factors associated with transitions over time and the influence of COVID-19. These are the focus of the current project.

### 2.1. Problem gambling severity

The term 'problem gambling' is a broad term used to describe harms associated with difficulties in limiting time and/or money spent on gambling (Neal et al., 2005), and is intended to encompass a continuum of severity that includes pathological gambling (i.e., Potenza et al., 2019). There are several validated tools to measure problem gambling severity and prevalence which have been used in previous population surveys (Ferris & Wynne, 2001; Gerstein et al., 1999; Lesieur & Rothschild, 1989). The Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001), consistently used in the gambling prevalence surveys in Australia – including the current study – is the most widely used contemporary population-measure of problem gambling and has good psychometric properties (Holtgraves, 2009; Orford et al., 2010). Similar to other problem gambling measures, the PGSI items capture a combination of the

common features of addiction according to DSM criteria, and the most common harms that result from gambling (Abbott & Volberg, 2006). In population studies the challenge of these hybrid measures is that they are designed to assess severe gambling pathology, which is reported by a small percentage of the total population. While they are important to include in gambling prevalence studies as a robust indicator of change over time, such measures are not designed to identify less severe negative consequences of gambling within the population. Notwithstanding this critique, the PGSI forms a useful benchmark to assess estimates for gambling in reference to previous academic, government, and industry research/publications.

## 2.2. Gambling-related harm

In contrast to problem gambling, gambling-related harm (or gambling harm) refers to a range of negative consequences that can arise from engagement in any gambling activity. The main categories of gambling harm are financial, social, psychological, physical, occupational, and cultural, that are directly caused by gambling (Langham et al., 2016; Browne et al., 2022). Gambling harm tends to overlap with gambling risk or severity, indicating that problem gambling and gambling harm are overlapping but distinct constructs. Indeed, research has shown that the experience of gambling-related harm can occur across all levels of gambling risk, not just at moderate or problem levels of gambling (i.e., Miller, 2017; Raisamo, 2017).

There is no one consensus about the definition or measurement of gambling harm. Recent attempts include the use of measurement tools such as the Short Gambling Harm Screen (SGHS; Browne & Rockloff, 2018a) and the Gambling Harm Measure (GHM; Delfabbro, Williams & Parke, 2020). The SGHS consists of 10 statements that describe an experience of gambling harm, including items such as “late payments on bills”, “reduced performance at work”, “increased experience of depression”, and “experienced greater conflict”. The benefit of this measure is that it is straightforward to interpret; each question from this scale is scored with either a “yes” or “no”, therefore indicating the presence or absence of gambling-related harm.

The GHM is similar to the SGHS, in that it characterises a range of life domains impacted by gambling, such as financial, psychological, relational, health and occupational. However, the GHM considers an additional dimension that captures the relative impact of harm due to gambling. Within this framework, each type of gambling harm is assessed against their relative impact on an individual, ranging from low, to moderate, and severe levels of harm. While both the SGHS and GHM have been used in previous Australian gambling research, gambling harm remains an active area of investigation.



While fractionally a small part of the population (less than 10%), individuals who gamble at low levels of risk have been shown to account for over half of all gambling harm experienced in the general population (using a particular methodology) (Browne, Greer, Rawat, & Rockloff, 2017). However, more recent empirical research with an alternate approach suggests far lower rates of negative outcomes for individuals who report low-risk gambling (Delfabbro, Georgiou, & King, 2021). Taken together, future research that can utilize robust methodology as well as population-representative datasets can ascertain levels of harm related to low-risk gambling. In either case, examining movements in and out of low-risk gambling, particularly given the unstable nature of this category, can be used to identify factors associated with transitions to more severe gambling problems.

### **2.3. Low-risk gambling in Australian gambling prevalence surveys**

Recent Australian gambling prevalence studies provide useful insights into sociodemographic, health, and harm profiles of individuals who gamble at low levels of risk, as measured by PGSI. As expected, total prevalence rates for low-risk gambling differs across states and from year to year and most recent estimates show low-risk gambling ranges from 4% to 7% in the broader population (Delfabbro & King, 2022., Paterson et al., 2019, O'Neill et al., 2021), and an average of 9% of all gambling categories (O'Neill et al., 2021). While each gambling prevalence survey is not directly comparable (due to a range of methodological approaches and timing), they provide comprehensive profiles of sociodemographic, health correlates/outcomes, and harm profiles for low-risk gambling across the Australian population.

Recent gambling prevalence studies providing estimates for low-risk gambling profiles include Tasmanian (TAS) data in 2017 (ACIL Allen Consulting, 2017) and 2020 (O'Neil et al., 2020); New South Wales (NSW) data in 2019 (Browne et al., 2019); Victorian (VIC) data in 2014 (Hare et al., 2015) and 2018/2019 (Rockloff et al., 2020); and data from The Australian Capital Territory (ACT) in 2014 (Davidson et al., 2015) and 2019 (Paterson et al., 2019). In the following section we have synthesised some of this data across the surveys to highlight commonalities and differences of low-risk gambling compared to other gambling risk groups. This synthesis is intended to paint a picture of individuals in the low-risk gambling categories overall.

#### **2.3.1. Demographics**

Across Australian gambling prevalence surveys, individuals who report low-risk gambling are more likely to be male rather than female (ACIL Allen Consulting, 2017; O'Neil et al., 2020; Browne et al., 2019; Rockloff et al., 2020), they tend to be in

younger rather than in older age categories (i.e., ACIL Allen Consulting, 2017; Browne et al., 2019), and more likely to be single than partnered (Browne et al., 2019; Davidson et al., 2015). Individual surveys suggest that individuals who gamble at low-risk are likely to have completed year 12 education and to be employed part-time (ACIL Allen Consulting, 2017) or be a student (Browne et al., 2019). In summary, individuals in the low-risk gambling groups are likely to be younger males, who are single and not in full time employment, factors shown to be risk factors for gambling severity overall.

### **2.3.2. Health**

Overall, individuals that engage in low-risk gambling tend to be healthier than those classified as gambling at more problematic levels, but are less healthy than those not reporting any negative consequences due to gambling. Specifically, low-risk gambling groups report greater levels of risky alcohol consumption and smoking when compared with non-problem gambling groups, but notably to a lesser degree when compared with individuals who gamble at moderate or problem levels (O’Neil et al., 2020; Rockloff et al., 2020; Victoria, 2014; Davidson et al., 2015). Despite this, low-risk gambling is associated with similar rates of alcohol consumption (while gambling) to higher levels of gambling risk (ACIL Allen Consulting, 2017; O’Neil et al., 2020; Browne et al., 2019; Rockloff et al., 2020). Similar relationships between mental distress and gambling severity are also evident in recent studies, where low-risk gambling groups tend to score between non-problem gambling and more severe gambling categories (O’Neil et al., 2020; Rockloff et al., 2020; Paterson et al., 2019). Results about the physical health relating to low-risk gambling are mixed, however: In the ACT 2014 survey (i.e., Davidson et al., 2015) low-risk gambling was associated with fair or poor physical health (Davidson et al., 2015), but recent estimates suggest that low-risk gambling groups predominantly report good health (i.e., O’Neil et al., 2020). This group also tends to report a lower level of quality of life compared to non-gambling or non-problem gambling groups, but greater quality of life compared with individuals who gamble at moderate or problematic levels (Paterson et al., 2019; ACIL Allen Consulting, 2017). Overall, individuals engaging in low-risk gambling have better health outcomes than higher gambling risk groups, but poorer health outcomes when compared with those who do not report any negative consequences of gambling.

### **2.3.3. Gambling harm**

The measurement of gambling harm is only a recent addition to gambling prevalence surveys, and the few studies that use the SGHS, for example, demonstrate consistency across health, relational and financial harms associated with low-risk gambling. Financial harms experienced by individuals who gamble at low-risk tend to include a reduction in savings and spending money (O’Neil et al., 2020; Rockloff et al.,

2020), but also relational harms including relationship conflict and neglecting family responsibilities (O’Neil et al., 2020, Browne et al., 2019). Some surveys report psychological harms in relation to low-risk gambling, such as the experience of depression, distress, and hopelessness because of gambling (Browne et al., 2019) regrets, shame, and distress associated with gambling (Rockloff et al., 2020), as well as work/study impacts due to gambling (Browne et al., 2019, O’Neill et al., 2020). Some estimates suggest feeling depressed or distressed are the most common items endorsed by individuals who gamble at low levels of risk (Browne et al., 2019), whereas other estimates report a reduction of available spending money and savings as the most common harm (Rockloff et al., 2020). Evidence into the experience of more severe harms associated with low-risk gambling were not common across studies to date.

## **2.4. Transitions in and out of low-risk gambling**

Australian gambling prevalence studies traditionally use cross-sectional data. This allows the description of overall gambling profiles at a single timepoint, but it does not allow researchers or policy makers to capture patterns in gambling severity for individuals across time. Australian longitudinal evidence suggests an inherent instability within low-risk gambling, where movement in and out of this category is more likely than stability, and transitions to less severe levels of harm are more likely than to greater levels of harm (Billi et al. 2014). Similarly, longitudinal evidence from Tasmania (ACIL Allen Consulting, 2015) suggests that over half of all individuals from initial low-risk gambling levels tend to transition into non-problem levels of gambling. In contrast, other evidence suggests little movement between non-problem and problem gambling categories over time, suggesting that problematic gambling is a relatively stable chronic health condition, albeit with periods of fluctuation, similar to other addictions (Billi et al., 2015, ACIL Allen Consulting 2015, Williams et al., 2015).

## **2.5. Predictors of gambling transitions**

While evidence is limited in regard to transitions from low-risk gambling, numerous sociodemographic factors have been shown to predict an increased level of gambling risk. Such factors can include demographic information (e.g., male gender, lower educational attainment, younger age), gambling behaviour (e.g., gambling frequency and expenditure, motivations), and psychosocial factors (e.g., stressful life events, depression, anxiety, impulsivity, and substance use) (Abbott et al., 2014; Billi et al., 2014; Dowling et al., 2017; el-Guebaly et al., 2015; Hodgins & el-Guebaly, 2004; Scherrer et al., 2007; Williams et al., 2015). Similarly, factors associated with recovery from gambling problems include being of female gender, older age, less severe

gambling problems, lower levels of alcohol use, being employed, low depressive symptomatology, and higher levels of engagement with treatment services, use of self-help strategies, social support, and meaningful leisure activities (Fröberg et al., 2015; Hodgins & el-Guebaly, 2000; Lubman et al., 2015; Merkouris et al., 2020; Merkouris et al., 2016; Samuelsson, Sundqvist, & Binde, 2018). Although the above data suggests that there are differences in change and recovery profiles of individuals who gamble, more research that applies this understanding directly to the low-risk gambling category is needed, such as specific harm profiles related to low-risk gambling, the certain harms they experience, and risk and protective factors related to increased gambling risk.

## **2.6. Current study**

The three aims of the current study were to:

1. Establish the harm profiles associated with low-risk gambling in the ACT and in Australia more broadly
2. Identify factors related to transitions to more or less severe levels of gambling for individuals engaged in low-risk gambling
3. Examine the gambling risk transitions relating to low-risk gambling before, during and after COVID-19

### **2.6.1. Cross-sectional ACT Gambling prevalence data**

To better understand gambling risk transitions specific to low-risk gambling category, the first aim of the current study is to describe the profiles of low-risk gamblers in the ACT gambling prevalence surveys, focusing on the more recent survey with a larger sample of individuals in the low-risk gambling category, and repeating the analysis on the ACT 2014 data where comparisons aid the understanding of potential changes over time. To generate this information, the current study examined the harm profiles of low-risk gambling based on individual items from both the PGSI (Ferris & Wynne, 2001) and SGHS where available (Browne & Goodwin, 2018). The PGSI measure is a widely used tool for categorising individuals into four discrete risk categories for gambling severity, and as such overlaps with clinical diagnostic approaches. In contrast, the SGHS measure asks about different domains of harm experienced as a consequence of gambling and provides a measure of degree of harm (Delfabbro & King, 2019, 2017). Within this current project, we offer a complimentary approach that considers how gambling harm (i.e., SGHS) may be distributed across gambling categories (i.e., PGSI), focussing on the low-risk gambling cohort.

### 2.6.2. Longitudinal Australian gambling severity data

This project also aims to identify various socio-demographic, gambling-related, and psychosocial factors associated with moving in or out of the low-risk gambling group. This will provide valuable information to inform prospective prevention activities to reduce gambling harm at a population level. Nationally representative longitudinal datasets that have included PGSI as a gambling risk measure include the Household, Income, and Labor Dynamics Australia (HILDA; Suomi et al., 2022) and ANUpoll using the *Life in Australia* panel (Biddle, 2020).

HILDA data has been previously used to show problem gambling associations with lower subjective wellbeing, and a range of negative psychosocial outcomes, such as crime victimisation, interactions with the criminal justice system, divorce, financial hardship, and hazardous alcohol use (Churchill & Farrell, 2020; Farrell & Fry, 2021). Similarly, a range of psychosocial and health outcomes have been shown to precede gambling problems (Paterson, Taylor, & Gray, 2020). Cross-sectional investigations using the HILDA report negative health and wellbeing outcomes for individuals who live with individuals gambling at low levels of risk (Tulloch et al., 2023a). Profiles related to low-risk gambling and longitudinal transitions of low-risk gambling groups has not been reported using the HILDA data.

ANUpoll data collected within the COVID-19 pandemic suggests that levels of gambling decreased substantially during the height of COVID-19 restrictions, but began to recover when restrictions were removed (Biddle et al., 2020; Suomi et al., 2023). The current study builds on our work in overall gambling patterns during and after COVID-19 in 2023 (Suomi et al., 2023). This work specifically replicated previous evidence that outlined a reduction in the overall frequency and expenditure of gambling activities during the pandemic (i.e., Hodgins & Stevens, 2021), showing a gradual increase in gambling levels and activities by 2023. Importantly, broader literature suggests that individuals whose gambling increased during the pandemic had a higher likelihood of gambling severity, psychological distress, and increased levels of alcohol consumption (Håkansson, 2020) but transitions of individuals in the lower risk low-risk gambling group during and after the pandemic has not been examined.

The key variables to examine in relation to the profiles and trajectories of low-risk gambling include socio-demographic (e.g., gender, education, age) and psychosocial factors (e.g., psychological distress, social support, substance use), as these have been shown to be associated with increase in gambling risk across samples (Hodgins and el-Guebaly 2004, Scherrer, Xian et al. 2007, Abbott et al. 2014, Billi et al. 2014, el-Guebaly et al. 2015, Williams et al. 2015, Dowling et al. 2017). These variables will be examined, where available, in relation to low-risk gambling in the current study

## 3. Method

### 3.1. Datasets

**ACT gambling prevalence surveys.** The 2014 survey on *Gambling, Health and Wellbeing in the ACT* interviewed 7,068 ACT adult residents inclusive of 2,291 individuals who had spent money on gambling in the past 12 months. Data collection ranged from late 2014 to early 2015 and provided detailed information on gambling participation across the past 12 months. The *2019 ACT Gambling Survey* interviewed 10,000 ACT adult residents inclusive of 9,965 individuals who had spent money on gambling in the past 12 months. Data collection ranged across a 6-week period, from April to May 2019, and participants provided detailed information across gambling participation, gambling expenditure, and gambling harm (including harm from significant other's gambling) during the past 12 months. Both 2014 and 2019 prevalence surveys estimated problem gambling prevalence in the ACT using the PGSI tool.

**The Household, Income and Labour Dynamics in Australia (HILDA).** HILDA survey is a large-scale nationally representative longitudinal survey (Summerfield et al., 2020) that commenced in 2001. Gambling questions were included on the self-completion questionnaire for the first time in 2015 (wave 15) and repeated in 2018 (wave 18). Using data from individuals 15 years of age and above, information on gambling severity (PGSI) was collected from 15,146 individuals in 2015 and 15,499 individuals in 2018.

**ANUpoll collected through Life in Australia (LinA) survey.** LinA is a longitudinal, probability-based panel infrastructure where a broadly representative sample of Australian adults are invited to participate in monthly surveys either online or through Computer Assisted Telephone Interviewing (CATI). ANUpoll is an approximately quarterly survey of Australian public opinion, placing public opinion in a broad policy context. Since October 2017 the ANUpoll series of surveys has been collected through LinA, with seven waves of data collection between October 2017 and January 2020. Between April 2020 and January 2023, the ANUpoll series had a particular focus on COVID-19 outcomes, with 14 waves of data collection as part of the ANU Centre for Social Research and Methods, COVID-19 Impact Monitoring series. Information about gambling risk was collected from 1,867 individuals 18 years and older in May 2019, 3,029 individuals in November 2020, 3,474 individuals in October 2021, and 3,370 individuals in January 2023.

## 3.2. Measures

### 3.2.1. Key gambling risk outcome measure

Problem gambling severity across each dataset was measured by the 9-item Problem Gambling Severity Index (PGSI; Ferris & Wynne 2001), a standardised measure of at risk behaviour in problem gambling. The PGSI asks about the negative consequences and behavioural symptoms of gambling over the previous 12 months and the risk thresholds used in the current study were consistent with Currie, Casey & Hodgins (2010): (1) non-problem (PGSI score 0, including non-problem gambling); (2) low-risk (LR; PGSI score 1-2); (3) moderate risk (MR; PGSI score 3-7); and (4) problem gambling (PG; PGSI score 8+).

For some analyses, PGSI score of 1 or higher was considered 'at-risk' gambling, and PGSI score of 3 or higher was categorised 'high-risk (HR)'. Previous research has demonstrated high internal consistency for PGSI items (Ferris & Wynne, 2001; Holtgraves, 2009). Note that ACT (2014, 2019) and ANUpoll (2019, 2020, 2021 & 2023) datasets were able to distinguish between non-gambling (NG) and non-problem gambling (NPG) individuals (i.e., PGSI score of 0), whereas HILDA (waves 2015 and 2018) combined these two categories.

### 3.2.2. Demographic and psychosocial measures

Demographic variables such as age, gender, employment status, educational attainment, and marital/partnership status were collected across datasets and used for substantive analysis (see Table 1 for descriptions of these measures). Psychosocial variables examined across datasets include excessive alcohol consumption, mastery, financial hardship, dependents status, long term mental health condition, physical functioning, area socioeconomic status (SES), psychological distress, life satisfaction, social support, loneliness, and gambling harm. Descriptions of these psychosocial measures are also included in Table 1. Given certain demographic and psychosocial variables were assessed across particular datasets, Table 2 outlines the measures included from each dataset given this constraint.

Table 1: Description of demographic and psychosocial variables.

Variable	Description
<b>Gender</b>	Gender was defined as either Male or Female.
<b>Age</b>	Age was typically assessed across 7 categories (18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75 or more years), but was also assessed across 5 categories for longitudinal analyses (i.e., 25-34, 35-44, 45-54, 55-64, 65+).
<b>Employment</b>	Employment was characterised as either full-time or part-time employment, versus unemployment or not in paid employment.
<b>Education</b>	Educational status was defined as the highest educational attainment that individuals had completed, and was categorised as incomplete high school, high school, diploma/certificate or tertiary-level qualifications.
<b>Partnership Status</b>	Partnership status was used to assess the presence of a marital or significant partnership. This measure was binary coded, and was defined as either married/partnered or not married/partnered.
<b>Mastery</b>	Mastery was measured with Pearlin's Mastery Scale (Pearlin & Schooler, 1978), which is used to assess the degree to which individuals believe their life is under their control. Lower scores on this measure indicate lower perceived mastery.
<b>Financial Hardship</b>	Financial hardship was measured differently for HILDA (2015) and ANUpoll (2023); for HILDA, financial hardship was assessed from objective indicators of financial hardship (Australian Bureau of Statistics, 2000). For ANUpoll, financial hardship was defined as how individuals felt about their household's income, with scores of "Finding it difficult on present income" and "Finding it very difficult on present income" used to indicate financial hardship.
<b>Dependent Children</b>	Dependents status was used to assess the presence of dependent children in a household. This measure was binary coded, and defined as either has dependents or does not have dependents.
<b>Long Term Mental Health Condition</b>	The presence of a long-term mental health condition was derived from the Short Form Health Survey (SF-36), with scores of 52 or less as indicative of poor mental health (Summerfield et al., 2020; Too, Leach, & Butterworth, 2022; Ware, 2000).
<b>Area SES</b>	Relative socio-economic advantage or disadvantage were categorised from levels of socioeconomic wellbeing in particular regions (SEIFA, Australian Bureau of Statistics, 2011).
<b>Psychological Distress (K6, K10)</b>	Psychological distress was measured as how often participants experienced depressive, anxious or stress symptomatology, and was assessed with either the 6-item (K6) or 10-item (K-10) versions of The Kessler Psychological Distress Scales (Kessler et al., 2002; Wooden, 2009). The K6 was used in the ACT and ANUpoll datasets, whereas the K10 was used in HILDA. A cut-off of moderate distress was used for analysis.
<b>Excessive Alcohol Consumption</b>	Excessive alcohol consumption was defined as individuals reporting the consumption of 5 or more standard drinks on a single occasion within at least the past month (Leggat et al., 2022; Summerfield et al., 2020).
<b>Physical Function</b>	A measure of physical function was also derived from the SF-36 scale, with higher scores indicative of a more favourable health state (i.e., greater levels of physical functioning) (Butterworth & Crosier, 2004; Lins & Carvalho, 2016; Ware & Sherbourne, 1992).
<b>Life Satisfaction</b>	Life satisfaction was assessed as the degree to which participants were satisfied with life as a whole these days, with scores ranging from "Not at all satisfied" (0) to "Completely satisfied" (10).
<b>Social Support</b>	Perceived social support was assessed based upon 10 items such as: "I don't have anyone I can confide in" and "I seem to have a lot of friends" (Summerfield et al., 2020), with higher scores indicating greater perceived levels of social support (Crosier, Butterworth, & Rodgers, 2007).
<b>Loneliness</b>	A measure of loneliness was derived from how often in the past week participants felt lonely, with responses of "Most or all of the time (5 to 7 days)" used to indicate the presence of loneliness.
<b>Gambling Harm</b>	Gambling Harm was assessed using the Short Gambling Harm Scale (Browne et al., 2018) in the ACT 2019 data. This measure consists of 10 items that are designed to capture unique financial, emotional or psychological, and relationship harms due to gambling. Each item is scored in a binary yes or no format, with the sum total of these responses ranging up to 10.



Table 2: Demographic and psychosocial variables available across datasets and study samples.

	ACT 2019	HILDA 2015	HILDA 2018	ANUpoll 2019	ANUpoll 2020	ANUpoll 2021	ANUpoll 2023
<b>Gender</b>	X	X	X	X			X
<b>Age</b>	X	X	X		X		
<b>Employment</b>	X	X	X		X	X	
<b>Education</b>	X	X	X	X			X
<b>Partnered Status</b>	X	X	X				X
<b>Mastery</b>		X					
<b>Financial Hardship</b>		X			X		X
<b>Dependents Status</b>		X	X				X
<b>Long Term Mental Health Condition</b>		X					
<b>Area SES</b>		X		X			X
<b>Psychological Distress (K6)</b>					X	X	
<b>Psychological Distress (K10)</b>		X					
<b>Excessive Alcohol Consumption</b>		X					
<b>Physical Function</b>		X					
<b>Life Satisfaction</b>		X			X	X	
<b>Social Support</b>		X					
<b>Loneliness</b>					X		X
<b>Gambling Harm</b>	X						

*Note:* Constructs from the ACT 2014 dataset are not reported in this table, given the focus on PGSI items from this dataset alone.

### 3.3. Analysis

We used STATA/MP 17.0 for all analyses. We used complete-case analysis with population weights for each dataset with the exception of ANUpoll longitudinal analyses.

For the cross-sectional data, crosstabulations of categorical variables were used to examine the distribution of the outcomes of interest. We report frequencies (n) and column percentages (%) for the crosstabulated cells to outline the distribution of participants, and Chi-Square Test of independence to indicate any statistically significant associations overall. Adjusted Residuals (*ASR*) were used to indicate which cells were significantly different to the expected distribution of the data ( $-2.0 > ASR > 2.0$ ). For significance testing we report the following levels: \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .10$ .

The base sample for the longitudinal analysis were all individuals who scored in the low-risk gambling category at the first timepoint of each analysis. For example, in HILDA, individuals scoring in the low-risk gambling categories in 2015 were grouped into three categories based on which PGSI gambling group they had transitioned in 2018 of individuals who: (1) moved into non-gambling/non-problem (NG/NPG) gambling category; (2) remained in the low-risk (LR) gambling category; and (3) moved into high-risk (HR) gambling category (combining moderate risk and problem gambling categories). For the ANUpoll data we used a similar categorisation, with the exception of the first category being further divided into those who did not gamble (non-gambling; NG), and those who gambled but did not report any negative consequences (non-problem gambling; NPG). This information was not available in the HILDA dataset

For longitudinal analysis in HILDA data, we used multinomial logistic models to examine sociodemographic, health and gambling-related predictors of each transition group described above. For ANUpoll data where the samples sizes were too small for regression models and instead we used crosstabulations, Chi-Square Test of Independence and *ASR*'s to indicate statistically significant associations between categorical variables.

## 4. Findings

The findings section is structured in two parts. The first part reports the cross-sectional profiles of individuals engaging in low-risk gambling across the main datasets: ACT population gambling prevalence surveys (2014 and 2019), HILDA 2015 and 2018 samples, and the ANUpoll 2019, 2020, 2021 and 2023 samples. It also provides more detail about gambling profiles of the ACT 2019 data where more in-depth information was available. The second part reports on the longitudinal transitions of individuals engaging in low-risk gambling in HILDA 2015, and ANUpoll 2019, 2020 and 2021 waves.

### 4.1. Cross-sectional profiles related to low-risk gambling

As shown in Table 3, total estimates for low-risk gambling across the datasets range from 3.7% (HILDA, 2018) to 9.4% (ANUpoll, 2019), with the most recent estimates at 7.0% (ANUpoll, 2023). For comparison, estimates of the population who engaged in moderate risk gambling range from 1.9% (ACT, 2014) to 3.4% (ANUpoll, 2019), and estimates of problem gambling range from 0.8% (ACT, 2019 and ANUpoll, 2019) to 1.8% (ANUpoll, 2021). Note that for the HILDA sample, proportions of non-gambling and non-problem gambling categories were combined.

Table 3: Distribution of gambling severity categories (PGSI) across datasets.

	N	NG (%)	NPG (%)	LR (%)	MR (%)	PG (%)
<b>ACT 2014</b>	2,291	45.4	46.3	5.1	1.9	1.3
<b>ACT 2019</b>	9,965	40.1	49.6	7.0	2.5	0.8
<b>HILDA 2015</b>	15,146		92.4	4.1	2.5	1.1
<b>HILDA 2018</b>	15,499		92.9	3.7	2.4	1.0
<b>ANUpoll 2019</b>	1,867	32.2	54.2	9.4	3.4	0.8
<b>ANUpoll 2020</b>	3,029	42.0	47.7	6.5	2.6	1.1
<b>ANUpoll 2021</b>	3,474	46.5	43.3	5.4	3.0	1.8
<b>ANUpoll 2023</b>	3,370	38.5	50.1	7.0	3.2	1.2

*Note:* Weighted estimates were used for proportions, and sample-size (N) represents individuals with complete gambling data. Gambling severity categories were coded in-line with the PGSI; NG = Non-Gambling, NPG = Non-Problem Gambling, LR = Low-risk Gambling, MR = Moderate Risk Gambling, and PG = Problem Gambling.

Table 4 outlines demographic and psychosocial profiles related to low-risk gambling across datasets. Low-risk gambling was consistently related to male, rather than female gender, and younger age (i.e., 25-34) in ACT and HILDA, and also middle aged (45-54) in the ANUpoll data. The rates of employment in low-risk groups were similar

across datasets, with the exception of the ACT 2019 sample where levels of employment were much higher. Similarly, the ACT 2019 sample had a larger proportion of tertiary educated individuals in the low-risk group, and a lower proportion of individuals who had not completed high school in the low-risk group. Partnership and dependents status were relatively consistent for low-risk gambling across datasets; on average, individuals who gamble at low-risk were equally as likely to be partnered or non-partnered (with the ANUpoll sample comprising a slightly higher proportion of partnered individuals). The low-risk group were also less likely to have dependent children in their care.

Table 4: Profiles of low-risk gambling across three datasets.

	ACT 2019 (%)	HILDA 2015 (%)	ANUpoll* (%)
<b>Female</b>	38.8	40.5	36.3
<b>Age</b>			
18-24	22.5	11.8	2.8
25-34	28.3	20.2	21.6
35-44	18.9	17.4	21.2
45-54	10.8	16.9	22.5
55-64	11.6	15.5	11.2
65-74	5.7	12.1	11.9
75+	2.2	6.1	5.4
<b>Employed</b>	83.7	59.8	72.1
<b>Education</b>			
Incomplete high school	9.7	26.6	22.9
High school	31.9	16.9	11.3
Dip/Cert	27.6	38.0	54.7
Tertiary qualifications	30.9	18.5	14.3
<b>Partnered</b>	42.1	53.1	69.1
<b>Dependent children</b>	n/a	24.4	39.2
<b>Psychological distress</b>			
Moderate distress (K6/K10)	37.0	18.2	48.7

Note: All estimates are weighted. For ACT 2019, parent status was not measured. \*For ANUpoll, age and psych. distress estimates were generated from 2019 data, employment status from 2020, highest level of education from 2020, and partnered and dependents status from 2023 data.

Table 5 outlines the distribution of responses to 9 PGSI items for the low-risk gambling groups across each dataset. In the ACT and ANUpoll samples, *experiences of guilt* associated with gambling (Q7) was the most frequently reported item. In the HILDA sample the most frequently reported item by low-risk gambling groups was *betting more they could afford to lose* (Q1).

Table 5: PGSI items related to low-risk gambling.

In the past 12 months..	ACT 2014 %	ACT 2019 %	HILDA 2015 %	HILDA 2018 %	ANUpoll 2019 %	ANUpoll 2020 %	ANUpoll 2021 %	ANUpoll 2023 %
Q1: bet more than you could really afford to lose?	19.2	14.9	40.3	37.7	22.1	22.2	16.9	17.6
Q2: needed to gamble with larger amounts of money	22.5	13.6	15.1	13.7	10.3	10.9	9.3	8.7
Q3: gone back on another day to try to win back	26.8	23.7	27.2	26.6	22.0	19.8	24.2	23.6
Q4: borrowed money or sold anything to gamble?	4.3	2.1	1.0	1.3	0.2	0.0	0.0	0.0
Q5: felt that you might have a problem with gambling?	11.6	7.4	9.9	12.0	6.2	8.6	15.0	15.6
Q6: people criticised/told.. you had a gambling problem	18.2	16.7	7.4	9.8	9.7	11.2	7.1	7.8
Q7: felt guilty about the way you gamble	33.3	37.7	25.0	27.1	54.1	55.0	52.6	53.8
Q8: Has gambling caused you any health problems	2.4	4.1	2.5	3.8	3.2	4.7	2.7	4.8
Q9: Has your gambling caused financial problems	0.9	1.4	0.8	1.7	2.9	0.6	4.0	1.5
<b>Sample size</b>	<b>129</b>	<b>568</b>	<b>596</b>	<b>588</b>	<b>143</b>	<b>162</b>	<b>162</b>	<b>207</b>

Note: All proportion estimates are weighted, and sample size estimates are unweighted.

Table 5 also shows commonalities in PGSI endorsement across datasets; as an example, *gone back another day to try win back money they had lost* (i.e., chasing losses) (Q3) was reported by around one quarter of each low-risk samples. Furthermore, the lack of endorsement of more severe negative consequences due to gambling for the low-risk group was also observed across samples, such as *borrowing money or selling items to fund gambling* (Q4), and the *experience of health* (Q8) or *financial problems due to gambling* (Q9). As a point of difference, the ACT samples were more than twice as likely to be *criticized or being told they had a gambling problem* (Q6) compared to HILDA or ANUpoll samples. As a complement to Table 5, Figure 1 depicts these patterns in PGSI item response. In Figure 1, the horizontal axis depicts the distribution of responses to PGSI items (Q1 – Q9) across each dataset (colour bar included in the figure indicates each dataset), with the vertical axis depicting the percentage of individuals who endorsed each item.

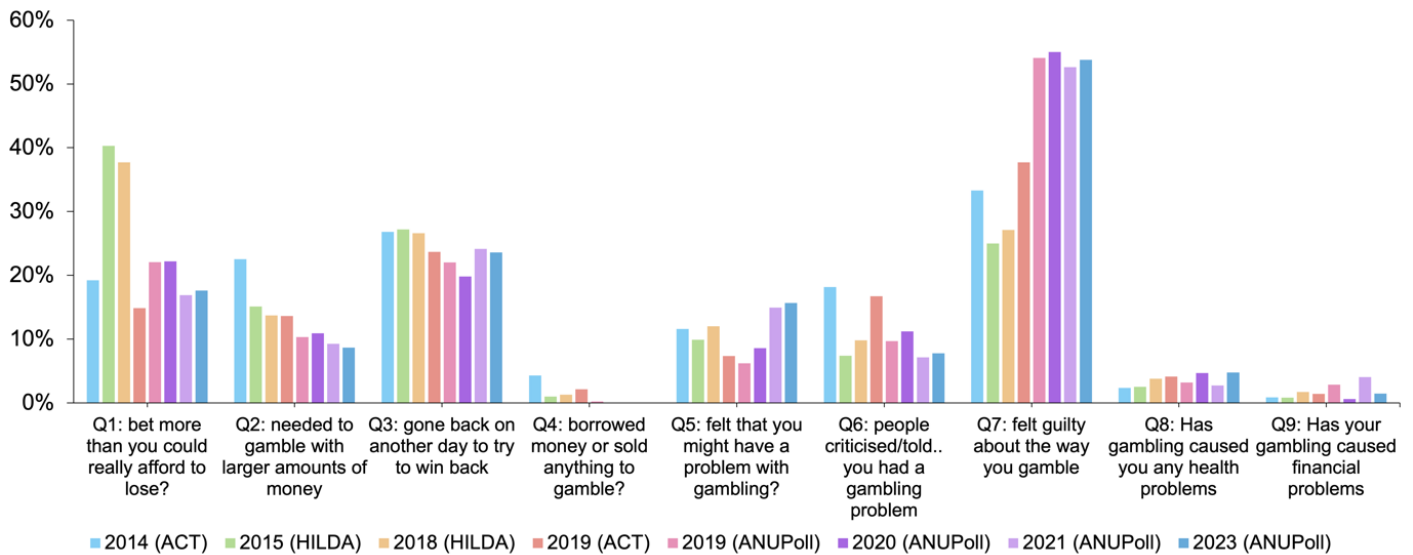


Figure 1: Distribution of PGSI items among low-risk gambling group across datasets.

## 4.2. Gambling Harm related to low-risk gambling in the ACT

Table 6 and Figure 2 presents the distribution of SGHS items within the ACT population (in 2019) across problem gambling (PGSI) categories. Table 6 shows that the most common harms reported by individuals in the low-risk gambling category include ‘a reduction in available spending money’ (~20.4%), as well as the experience of ‘regrets’ (~14.1%) and ‘a reduction in saving money’ (~14.0%). No individuals in the low-risk category reported having to sell items to gamble. Individuals who gambled at low-risk tend to report items such as ‘felt ashamed’, ‘increased credit card debt’, ‘spent less time with people you care about’, ‘felt distressed about gambling’, and ‘felt like a failure’ at very low frequencies (i.e., below 5%). Given this pattern of harms observed for low-risk gambling, it is possible to distinguish between common harms associated with gambling (i.e., monetary impacts), as well as infrequent but more problematic harms (i.e., psychological distress, relationship impacts) that are evident for some individuals.

Table 6: Distribution of responses to gambling harm items by PGSI category (ACT 2019 survey).

	NPG (n, %)	LR (n, %)	MR (n, %)	PG (n, %)
1 Reduction in spending money	225 4.7	109 20.4	76 48.0	47 77.0
2 Reduction of your savings	141 2.8	73 14.0	70 36.3	52 85.6
3 Less spending on recreational...	59 1.5	32 7.7	37 21.2	36 62.3
4 Had regrets about gambling	79 2.0	75 14.1	81 47.5	56 87.4
5 Felt ashamed of your gambling	16 0.3	19 3.3	39 22.8	49 78.0
6 Sold personal items	1 0.0	0 0.0	3 2.6	7 13.9
7 Increased credit card debt	7 0.1	11 1.1	13 8.0	17 21.9
8 Spent less time with people you...	14 0.3	15 2.4	26 11.6	31 48.9
9 Felt distressed about your gambling	11 0.2	12 2.6	35 17.0	51 81.1
10 Felt like a failure	21 0.5	17 3.8	18 10.3	39 59.3
<b>Total n</b>	<b>5,039</b>	<b>568</b>	<b>179</b>	<b>65</b>

Note: Proportions were weighted, and frequencies were unweighted.

Figure 2 shows that individuals within the problem gambling category (PG) exhibited the largest degree of harm across all SGHS items, with the most frequent endorsements for a 'reduction in spending and saving money', 'regrets and shame', 'psychological distress', and 'feelings of failure'. These findings are replicated, yet to a lesser degree, for the moderate risk group (MR), where the most commonly endorsed harms were a 'reduction of savings and spending money' and the 'experience of regret'. The horizontal axis depicts individual SGHS items, and vertical axis depicts percentage of individuals who endorsed each item, whereby NPG = Non-Problem Gambling (Orange), LR = Low-risk Gambling (Green), MR = Moderate Risk Gambling (Blue), and PG = Problem Gambling (Red).

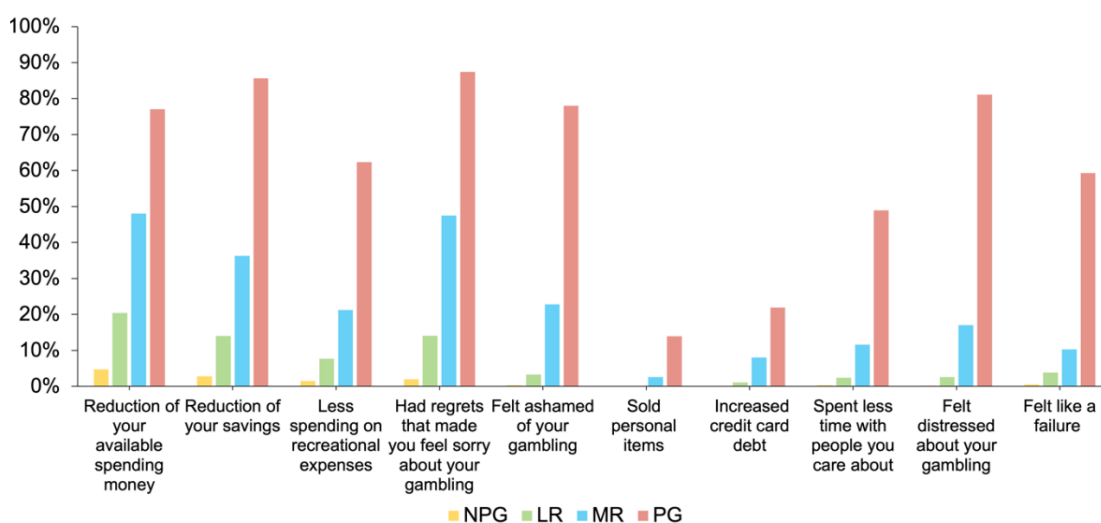


Figure 2: Distribution of gambling harm items across PGSI categories (ACT 2019 survey).

## Key findings from the cross-sectional gambling data

- Across three Australian population representative datasets that were collected between 2014 and 2023, low-risk gambling prevalence ranged between 3% and 7% of the broader population.
- Individuals that engaged in low-risk gambling were characterised by younger age, male gender, lower levels of education, no children, and full-time or part-time employment, with above average levels of psychological distress.
- Individuals that engaged in gambling at low levels of risk tend to endorse specific PGSI items, such as feeling guilty about gambling (Q7), going back another day to win back the money they had lost (Q3), and betting more than they could afford to lose (Q1)
- Most frequently reported SGHS harms associated with low-risk gambling were financial (i.e., a reduction in spending and a reduction in savings) and psychological (i.e., had regrets about gambling). Those in the higher end of PGSI gambling risk reported more psychological harms (i.e., feeling distressed).



### 4.3. Longitudinal transitions related to low-risk gambling

Longitudinal data in the HILDA and ANUpoll datasets were then used to explore the transitions related to low-risk gambling over time. Table 7 presents the total sample size for longitudinal analysis across HILDA and ANUpoll datasets. This indicates the availability of data at two timepoints for individuals that reported low-risk gambling at the first timepoint. Data on gambling risk was available in HILDA across 2015 to 2018, and in ANUpoll from 2019 to 2020, 2020 to 2021, and from 2021 to 2023.

Table 7: Sample sizes for longitudinal analysis.

	HILDA	ANUpoll		
	2015-2018	2019-2020	2020-2021	2021-2023
<b>Proportions (%)</b>				
Non-gambling (NG)		14.0	18.8	16.1
Non-problem gambling (NPG)	61.1	53.7	67.7	51.8
Low-risk gambling (LR)	24.7	23.7	20.1	70.6
High risk gambling (HR)*	14.2	8.6	9.3	40.8
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Sample size (N)</b>				
NG		13	18	16
NPG	282	66	54	36
LR	128	29	31	39
HR	73	8	14	8
<b>Total</b>	<b>483</b>	<b>116</b>	<b>117</b>	<b>99</b>

Note: Proportion estimates are weighted, and sample size estimates are unweighted. \*High risk (HR) gambling comprises all individuals with PGSI score 3+.

#### 4.3.1. HILDA longitudinal analysis

Table 8 presents the distribution of potential predictors for each variable across the three transition groups in HILDA, indicating where individuals who were low-risk gambling in 2015 had transitioned to by 2018: (1) Non-gambling/Non-problem (NG/NPG); (2) Low-risk (LR); or (3) High risk gambling (HR) category.

Table 8: Distribution of potential predictors of low-risk gambling transitions in 2015 (n=475, HILDA).

	NG/NPG in 2018 (%)	LR in 2018 (%)	HR in 2018 (%)
<b>Female</b>	44.3	43.3	42.3
<b>Age</b>			
15-24	11.6	5.3	12.9
25-34	20.4	12.7	31.3
35-44	17.4	10.1	10.7
45-54	17.8	24.2	15.3
55-64	16.6	18.9	9.1
65+	16.2	28.8	20.7
<b>Mastery (7-49 Scale)</b>	36.2	35.3	35.1
<b>Any Financial Hardship</b>	27.6	24.0	22.8
<b>Partnered</b>	57.5	60.8	50.5
<b>Dependent Children</b>	23.8	29.3	21.4
<b>Employed</b>	63.8	53.6	64.5
<b>Education</b>			
Incomplete high school	23.0	30.7	25.2
High school	14.1	14.9	20.7
Dip/Cert	43.5	36.3	28.0
Tertiary qualifications	19.3	18.1	26.1
<b>Long term mental health condition</b>	14.7	16.8	25.3
<b>Excessive drinking at least once a month</b>	40.7	40.2	46.5
<b>Area SES</b>			
Quintile 1 – Most Disadvantage	27.5	39.1	39.1
Quintile 2 – Neither Advantaged/Disadvantaged	45.7	34.7	40.9
Quintile 3 – Least Disadvantage	26.7	26.3	20.0
<b>Psychological Distress (K10)</b>	14.7	16.8	25.3
<b>Physical Function (0-100 scale) (M, SD)</b>	78.1, 27.8	77.2, 22.7	76.0, 23.6
<b>Life Satisfaction (0-10 scale) (M, SD)</b>	7.6, 1.6	7.7, 1.7	7.6, 1.3
<b>Social Support (10-70 scale) (M, SD)</b>	51.7, 10.7	52.2, 12.3	50.5, 10.4
<b>PGSI items: have you in the past 12 months..</b>			
Q1: bet more than you could really afford to lose?	42.5	34.8	38.0
Q2: needed to gamble with larger amounts	18.9	10.6	9.3
Q3: gone back on another day win back money...	32.6	20.7	31.1
Q4: borrowed money or sold anything to gamble?	0.5	0.0	3.4
Q5: felt that you might have a problem..?	5.2	17.4	17.0
Q6: people criticized, or told you had a problem	5.5	11.3	11.0
Q7: felt guilty about the way you gamble...	19.4	30.5	27.2
Q8: gambling caused you any health problems	1.5	4.4	2.9
Q9: gambling caused financial problems...	0.7	3.8	0.0

Note: Weighted Estimates were used.

Table 9 shows a series of simple multinomial models to examine the associations between demographic and psychosocial variables and low-risk gambling transitions, controlling for age and gender. Table 9 also shows that compared to the youngest age group (15-24), individuals who engaged in low-risk gambling in 2015 in older age groups (i.e., 45+) were more likely to remain in the low-risk gambling category in 2018, rather than transition into lower or higher levels of gambling risk.

Table 9: Factors associated with transitions for 475 individuals in the low-risk group in 2015 (HILDA).

	NPG in 2018 (b, SE)	LR in 2018 (b, SE)	HR in 2018 (b, SE)
<b>Female</b> (ref male)	0.02(0.06)	-0.01(0.05)	-0.01(0.05)
<b>Age</b> (ref 15-24)			
25-34	-0.05(0.11)	0.02(0.07)	0.03(0.10)
35-44	0.03(0.11)	0.04(0.08)	-0.07(0.07)
45-54	-0.12(0.11)	<b>0.18(0.09)**</b>	-0.07(0.08)
55-64	-0.06(0.11)	<b>0.16(0.09)**</b>	-0.10(0.07)
65+	<b>-0.20(0.10)**</b>	<b>0.23(0.08)***</b>	-0.03(0.08)
<b>Mastery (7-49 scale)</b>	0.00(0.00)	-0.00(0.00)	-0.00(0.00)
<b>Any financial hardship</b> (ref no hardship)	0.02(0.07)	0.02(0.06)	-0.04(0.05)
<b>Partnered</b> (ref not partnered)	0.02(0.06)	0.01(0.01)	-0.03(0.04)
<b>Dependent children</b> (ref no children)	-0.11(0.07)	<b>0.14(0.07)**</b>	-0.03(0.05)
<b>Employed</b>	0.02(0.08)	-0.03(0.06)	0.01(0.05)
<b>Education</b> (ref not finished high school)			
High school	-0.04(0.08)	0.02(0.08)	0.02(0.06)
Dip/Cert ¾	0.09(0.07)	-0.05(0.06)	-0.04(0.04)
Tertiary qualifications	0.00(0.09)	-0.02(0.07)	0.02(0.08)
<b>Long term mental health condition</b> (ref no MH condition)	-0.01(0.09)	-0.04(0.06)	0.04(0.07)
<b>Excessive drinking at least once a month</b> (ref no)	-0.05(0.06)	0.03(0.05)	0.02(0.05)
<b>Area SES (SEIFA 2011 A/D)</b> (ref lowest)			
Average	<b>0.14(0.06)**</b>	-0.09(0.06)	-0.05(0.05)
Highest	0.10(0.07)	-0.02(0.06)	<b>-0.08(0.04)*</b>
<b>Moderate psychological distress</b> (ref no)	-0.01(0.01)	0.00(0.00)	0.00(0.00)
<b>Physical function (0-100 scale)</b>	-0.00(0.00)	0.00(0.00)	-0.00(0.00)
<b>Life satisfaction (0-10 scale)</b>	-0.00(0.02)	0.01(0.02)	-0.01(0.01)
<b>Social support (10-70 scale)</b>	-0.00(0.00)	0.00(0.0)	-0.00(0.00)
<b>PGSI Items.</b> Have you in the past 12 months..			
Q1: bet more than you could really afford to lose?	-0.01(0.07)	-0.04(0.06)	0.04(0.04)
Q2: needed to gamble with larger amounts of money...	0.09(0.08)	-0.08(0.06)	-0.02(0.05)
Q3: gone back on another day to try to win back the money...	0.03(0.07)	<b>-0.09(0.05)*</b>	0.07(0.05)
Q4: borrowed money or sold anything to gamble?	<b>-0.38(0.22)*</b>	<b>-0.24(0.03)***</b>	<b>0.62(0.22)***</b>
Q5: felt that you might have a problem with gambling?	<b>-0.32(0.10)***</b>	0.13(0.10)	<b>0.20(0.09)**</b>
Q6: people criticised ... or told you had a gambling problem..	<b>-0.22(0.12)*</b>	0.07(0.09)	0.15(0.11)
Q7: felt guilty about the way you gamble or what happens...	-0.12(0.08)	0.03(0.06)	0.09(0.06)
Q8: Has gambling caused you any health problems..	-0.26(0.20)	0.16(0.17)	0.10(0.16)
Q9: Has your gambling caused any financial problems ..	-0.17(0.27)	0.31(0.27)	<b>-0.14(0.02)***</b>
<b>Group Size</b>	<b>282</b>	<b>128</b>	<b>73</b>

Note: The marginal effects refer to 2015 (i.e., transitions from low-risk). The standard errors are in parentheses. Longitudinal weights were used for the estimation. \*\*\* p<.01, \*\* p<.05, \* p<.10

Table 9 also shows that parental status and area SES in 2015 was significantly associated with the transitions: those who had dependent children in 2015 were more likely to remain in the low-risk group by 2018, when compared with those who had no dependent children. Compared to individuals engaging in low-risk gambling who lived in lowest SES areas, those living in average SES areas were more likely to move out of risky gambling altogether, and those living in highest SES areas were less likely to move into higher gambling severity over the three years between 2015 and 2018.

Table 9 shows that individuals in the low-risk gambling category who endorsed going *'back another day to win back the money they had lost'* (Q3) in 2015 were more likely to transition to higher risk gambling by 2018, compared to those who did not endorse this item. Individuals who *'borrowed money or sold anything for gambling'* (Q4) in 2015 were less likely to remain in the low-risk gambling group, and were more likely to transition into more severe gambling risk group. Those who *'felt they might have a problem with their gambling'* (Q5) in 2015 were more likely to transition to the more severe gambling category in 2018, and were also less likely to transition to the non-problem category by 2018 compared to those who did not endorse this item in 2015. Individuals in the low-risk gambling category who were *'criticised about their gambling or told by other people they had a gambling problem'* (Q6) were less likely to transition to non-problem gambling categories by 2018, compared to those who did not endorse these items in 2015. Finally, individuals in the low-risk gambling category whose gambling had *caused them financial problems* (Q9) in 2015 were less likely to transition to more severe gambling in 2018.

In summary, chasing losses, insight into one's own gambling problems, and borrowing money were positively associated with transitioning to more severe gambling over time for individuals in low-risk categories; whereas experience of financial problems was negatively associated with transitions to more severe gambling for these individuals. Individuals who gambled at low-risk who received criticism by others were less likely to transition to non-problem gambling.

#### 4.3.2. ANUpoll longitudinal analysis on COVID-19 transitions

The remainder of the findings are based on longitudinal data available in the ANUpoll dataset before, during and after COVID-19 global pandemic and related social restrictions. This includes analyses examining factors associated with low-risk transitions across three transitions points: (1) 2019-2020 (pre-COVID-19 to COVID-19); (2) 2020-2021 (COVID-19); and (3) 2021-2023 (COVID-19 to post-COVID-19).

**Low-risk transitions between 2019 and 2020.** Table 10 (overleaf) shows transitions of individuals who were in the low-risk gambling category pre-COVID-19 in 2019 to the first year of COVID-19 in 2020. Table 10 outlines associations between the four transition groups and sociodemographic variables, with significant relationships

observed for age and PGSI items. Regarding age, individuals from each age group transitioned to the non-problem gambling group, following a national trend, with the exception of individuals aged 25-44 who were more likely to remain in the low-risk gambling category in the first wave of the pandemic. Numbers transitioning to higher risk gambling were low in each group, but they were most likely to be from the age groups 35-44 and 65-74. Of the PGSI items, individuals engaging in low-risk gambling in 2019 who also reported they had *bet more than they could afford to lose* (Q1), *gambling with larger amounts* (Q2) and having *experienced financial problems as a result of their gambling* (Q9) were most likely to transition to the higher risk gambling group.

Table 10: Factors associated with transitions for 116 individuals in the low-risk group in 2019 (ANUpoll).

	NG in 2020 (%)	NPG in 2020 (%)	LR in 2020 (%)	HR in 2020 (%)
<b>Female (2019)</b>	30.7	46.9	31.0	37.5
<b>Age (2019)**</b>				
18-24	0.0	100.0	0.0	0.0
25-34	38.8	11.4	49.8	0.0
35-44	4.4	33.7	41.0	20.9
45-54	15.5	73.2	11.3	0.0
55-64	0.5	81.3	14.4	3.8
65-74	2.0	69.5	11.4	17.1
75+	9.9	74.7	15.4	0.0
<b>Financial hardship (2020)</b>	25.0	16.3	25.0	42.8
<b>Partnered (2023)</b>	50.0	70.0	62.0	50.0
<b>Dependent Children (2023)</b>	20.0	30.0	27.5	25.0
<b>Employed (2020)</b>	50.0	63.3	60.7	57.1
<b>Education (2019)</b>				
Incomplete high school	15.3	19.6	21.4	14.2
High school	15.3	9.8	7.1	14.2
Dip/Cert	23.0	37.7	39.2	57.1
Tertiary qualifications	46.1	32.7	32.1	14.2
<b>Area SES (2019)</b>				
Quintile 1 - Most Disadvantage	38.4	37.8	31.0	25.0
Quintile 2 – Neither Advantaged/Disadvantaged	23.0	15.1	20.6	0.0
Quintile 3 – Least Disadvantage	38.4	46.9	48.2	75.0
<b>Psychological Distress (2020)</b>	25.0	46.8	29.6	71.4
<b>Life Satisfaction (Mean) (2019)</b>	5.6	6.7	7.2	6.4
<b>Loneliness (2020)</b>	50.0	44.2	32.1	71.4
<b>PGSI items (2019)</b>				
Q1: bet more than you could really afford to**	23.0	16.6	6.9	50.0
Q2: needed to gamble with larger amounts*	15.3	9.0	10.3	25.0
Q3: gone back on another day to win back money	7.6	15.	31.0	12.5
Q4: borrowed money or sold anything to	0.0	1.52	0.0	0.0
Q5: felt that you might have a problem..?	15.3	10.6	13.7	12.5
Q6: people criticized, or told you had a problem	15.3	10.6	13.7	0.0
Q7: felt guilty about the way you gamble...	30.7	53.0	58.6	37.5
Q8: gambling caused you any health problems	7.6	4.5	3.4	0.0
Q9: gambling caused financial problems...***	0.0	0.0	0.0	12.5

Base: LR Gambling (n=116). \*\*\* $p < .01$ ; \*\* $p < .05$ ; \* $p < .10$ .

**Low-risk transitions between 2020 and 2021.** Table 11 (page 30) shows the bivariate analysis for transitions from the first year to the second year of COVID-19. It shows that the four transition groups were significantly associated with the area socioeconomic status, and one of the PGSI items: of those individuals who lived in the least disadvantaged areas, the majority were shown to transition to non-problematic levels of gambling (58.1%) while a smaller proportion were shown to transition to higher levels of gambling (14.2%). Those who reported '*needing to gamble with larger amounts of money*' (Q2) were most likely to stay in the low-risk gambling group during COVID-19.

Table 11: Factors associated with transitions for 117 individuals in the low-risk group in 2020 (ANUpoll).

	NG in 2021 (%)	NPG in 2021 (%)	LR in 2021 (%)	HR in 2021 (%)
<b>Female (2023)</b>	33.3	38.8	41.9	21.4
<b>Age (2019)</b>				
18-24	89.0	0.0	11.0	0.0
25-34	17.4	60.5	12.9	9.2
35-44	34.8	49.6	10.7	4.8
45-54	4.9	64.1	21.4	9.6
55-64	24.3	36.8	23.3	15.6
65-74	7.8	63.6	8.3	20.2
75+	13.1	31.8	55.1	0.0
<b>Financial hardship (2020)</b>	38.8	29.6	12.9	35.7
<b>Partnered (2023)</b>	55.5	61.1	58.0	57.1
<b>Dependent Children (2023)</b>	16.6	25.9	19.3	14.2
<b>Employed (2020)</b>	61.1	51.8	51.6	50.0
<b>Education (2019)</b>				
Incomplete high school	11.1	20.7	27.5	7.1
High school	11.1	13.2	6.9	0.0
Dip/Cert	38.8	28.3	27.5	64.2
Tertiary qualifications	38.8	37.7	37.9	28.5
<b>Area SES (2019)**</b>				
Quintile 1 - Most Disadvantage	55.5	31.4	38.7	57.1
Quintile 2 – Neither Advantaged/Disadvantaged	11.1	16.6	29.0	28.5
Quintile 3 – Least Disadvantage	33.3	51.8	32.2	14.2
<b>Psychological Distress (2020)</b>	38.8	31.4	38.7	42.8
<b>Life Satisfaction (Mean) (2020)</b>	6.3	7.0	6.6	7.0
<b>Loneliness (2020)</b>	33.3	31.4	38.7	42.8
<b>PGSI items (2020)</b>				
Q1: bet more than you could really afford to	16.6	16.6	16.1	35.7
Q2: needed to gamble with larger amounts **	5.5	7.4	22.5	0.0
Q3: gone back on another day to win back money...	11.1	18.5	19.3	35.7
Q4: borrowed money or sold anything to	0.0	0.0	0.0	0.0
Q5: felt that you might have a problem..?	11.1	9.2	9.6	14.2
Q6: people criticized, or told you had a problem	5.5	14.8	6.4	14.2
Q7: felt guilty about the way you gamble...	61.1	48.1	48.3	50.0
Q8: gambling caused you any health problems	5.5	3.7	6.4	0.0
Q9: gambling caused financial problems...	5.5	0.0	6.4	7.1

Base: LR Gambling (n=117). \*\*\* $p < .01$ ; \*\* $p < .05$ ; \* $p < .10$ .

**Low-risk transitions between 2021 and 2023.** Table 12 (page 31) shows transitions of individuals who were in low-risk gambling category in the second year of COVID-19 (2021). The bivariate analysis showed significant associations between the four transition groups and two PGSI items. Individuals who reported that their *gambling had caused health problems* (Q8) in 2021 were more likely to be in the high risk gambling categories, and individuals reporting that *gambling caused financial problems* (Q9) in 2021 were more likely to have ceased gambling in 2023. There were no other sociodemographic factors associated with the four transition groups.

Table 12: Factors associated with transitions for 99 individuals in the low-risk group in 2021 (ANUpoll).

	NG in 2023 (%)	NPG in 2023 (%)	LR in 2023 (%)	HR in 2023 (%)
<b>Female (2023)</b>	31.2	36.1	46.1	75.0
<b>Age (2020)</b>				
18-24	25.0	57.6	17.4	0.0
25-34	0.0	67.9	32.1	0.0
35-44	25.4	26.2	45.0	3.5
45-54	0.0	69.6	20.9	9.5
55-64	3.7	33.6	57.5	5.3
65-74	11.4	16.2	72.4	0.0
75+	4.8	51.9	43.3	0.0
<b>Financial hardship (2021)</b>	18.7	22.2	20.5	25.0
<b>Partnered (2023)</b>	75.0	69.4	58.9	50.0
<b>Dependent Children (2023)</b>	12.5	30.5	17.9	25.0
<b>Employed (2021)</b>	56.2	63.8	46.1	50.0
<b>Education (2023)</b>				
Incomplete high school	12.5	16.6	27.7	0.0
High school	25.0	8.3	13.8	12.5
Dip/Cert	18.7	44.4	27.7	62.5
Tertiary qualifications	43.7	30.5	30.5	25.0
<b>Area SES (2023)</b>				
Quintile 1 – Most Disadvantage	25.0	30.5	23.0	25.0
Quintile 2 – Neither Advantaged/Disadvantaged	12.5	22.2	25.6	37.5
Quintile 3 – Least Disadvantage	62.5	47.2	51.2	37.5
<b>Psychological Distress (2021)</b>	31.2	38.8	35.9	37.5
<b>Life Satisfaction (Mean) (2021)</b>	6.8	6.3	6.4	6.1
<b>Loneliness (2021)</b>	43.7	36.1	28.2	25.0
<b>PGSI items (2021)</b>				
Q1: bet more than you could really afford to lose	12.5	11.1	23.0	12.5
Q2: needed to gamble with larger amounts	6.2	13.8	5.1	0.0
Q3: gone back on another day to win back money...	18.7	27.7	15.3	25.0
Q4: borrowed money or sold anything to gamble	0.0	0.0	0.0	0.0
Q5: felt that you might have a problem..	12.5	8.3	28.2	12.5
Q6: people criticized, or told you had a problem	0.0	2.7	7.6	12.5
Q7: felt guilty about the way you gamble...	56.2	55.5	48.7	50.0
Q8: gambling caused you any health problems**	0.0	0.0	0.0	12.5
Q9: gambling caused financial problems...***	18.7	0.0	0.0	0.0

Base: LR Gambling (n=99). \*\*\* $p < .01$ ; \*\* $p < .05$ ; \* $p < .10$

## Key findings from the longitudinal analysis

- Across each dataset, over 60% of individuals within the low-risk gambling group transitioned to non-problem gambling or ceased gambling altogether in subsequent waves.
- Approximately one quarter of the low-risk gambling group remained in low-risk gambling, and one tenth transitioned to higher risk gambling.
- Younger age groups were more likely to transition out of low-risk gambling compared to older age groups. The youngest (18-24) age group was most likely to increase in gambling over time.
- Individuals living in lower socioeconomic areas were less likely to decrease their gambling risk over time than those living in less disadvantaged areas.
- During COVID-19, more individuals in the low-risk group ceased gambling altogether compared to other timepoints.
- From 2021-2023 (post-COVID-19 transition), more individuals in the low-risk gambling group remained at low-risk for problem gambling compared to other timepoints.
- Reports of financial problems caused by gambling was longitudinally associated with decreased gambling before and after COVID-19, but not during COVID-19.



## 5. Discussion

The current study examined profiles related to low-risk gambling in three Australian datasets collected between 2014 and 2023. We used the ACT gambling prevalence surveys and two Australian population representative datasets, HILDA and ANUpoll, to establish demographic and gambling harm profiles related to low-risk gambling. We also analysed low-risk gambling data longitudinally in HILDA and ANUpoll surveys to identify factors related to transitions to lower and higher risk gambling over time and the potential impact of COVID-19 on these transitions.

### 5.1. Low-risk gambling profiles

In line with recent Australian population estimates, the current study showed that low-risk gambling prevalence ranged between 3% and 7% of the population (Delfabbro & King, 2022., Paterson et al., 2019, O'Neill et al., 2021). As a benchmark, low-risk gambling rates are generally around twice as high when compared to moderate risk gambling rates, and are 4-6 times higher than problem gambling rates as measured by the PGSI in Australian state-based gambling prevalence surveys (Delfabbro & King, 2022).

#### 5.1.1. Sociodemographic and health profiles

Cross-sectionally, the datasets used in the current project showed similar patterns of low-risk gambling profiles to previous Australian data: Individuals engaged in low-risk gambling were characterised by younger age, male gender, lower levels of education, no children, and in full or part-time employment, with above average levels of psychological distress (ACIL Allen Consulting, 2017; O'Neil et al., 2020; Browne et al., 2019; Rockloff et al., 2020). In general, individuals that engage in low-risk gambling have better health and psychosocial outcomes than higher gambling risk groups, yet poorer outcomes when compared with those who do not report any negative consequences of gambling (O'Neil et al., 2020; Rockloff et al., 2020; Paterson et al., 2019). These findings are consistent with correlational evidence showing that increased levels of problem gambling severity at all levels of gambling risk (including moderate risk and problem gambling) are associated with lower levels of psychosocial wellbeing (Abbott et al., 2014; Billi et al., 2014; Dowling et al., 2017; el-Guebaly et al., 2015; Hodgins & el-Guebaly, 2004; Scherrer et al., 2007; Williams et al., 2015).

#### 5.1.2. Problem gambling severity and gambling harm items

Specific negative consequences of low-risk gambling is an emerging area of investigation, and published empirical data remains scarce. On close examination of

the nine PGSI items, the current study found that the low-risk groups most commonly reported feeling guilty about their gambling, chasing losses, and betting beyond their means. As expected, more serious consequences of gambling were hardly endorsed by the low-risk gambling (borrowing money or selling personal items to gamble, health or financial problems as a direct consequence of gambling).

Limited to ACT population only, and using a more specific measure of gambling harm (SGHS), we were able to identify that the most frequently reported harms were financial, (reduction in spending money or in savings), and feelings of regrets about gambling. Qualitatively, these harms are comparable to PGSI profiles across the three datasets, thus it is possible that such harm profiles apply to Australian population overall. By way of comparison, the problem gambling group also most commonly (but in higher numbers) endorsed regrets about gambling and reductions in savings, but also feeling distressed about their gambling. Taken together, these profiles can suggest that financial harms relate to both low and high levels of gambling risk, whereas psychological distress directly attributable to gambling is a specific feature associated with higher levels of gambling risk.

## **5.2. Longitudinal transitions from low-risk gambling**

The current study extends the contemporary understanding of low-risk gambling transitions over time. Across each dataset, a majority (>60%) of individuals within the low-risk gambling group transitioned to non-problem gambling or ceased gambling altogether in subsequent waves. Approximately one quarter of the low-risk gambling group remained in the low-risk group, and about one tenth transitioned to higher risk gambling across each timepoint. These findings build on previous Australian longitudinal evidence that suggests an inherent instability within low-risk gambling, and transitions to less severe levels of harm are more likely than to greater levels of harm (ACIL Allen Consulting, 2015; Billi et al. 2014).

### **5.2.1. Sociodemographic associations with transitions**

The current data shows mixed results about sociodemographic factors associated with low-risk gambling transitions over time. This is mainly due to the low sample sizes, and therefore large standard errors around the estimates. There are, however, some consistent findings.

In the HILDA data, significant associations included age and area socioeconomic status: Younger age groups were more likely to transition out of low-risk gambling compared to older age groups, and individuals living in lower socioeconomic areas were less likely to decrease their gambling risk over time. The area socioeconomic status was similarly associated with increased gambling risk in ANUpoll transitions

during and after COVID-19. The findings related to younger age were not present in ANUpoll, in fact, those transitioning to higher risk gambling in the first year of COVID-19 were in the most productive working age (35-44) or recently retired (65-74).

Previous literature indicates that in addition to age, lower levels of educational attainment and a number of psychosocial factors are predictive of an increase in gambling severity. These sociodemographic patterns were not evident in our data, that was solely focused on low-risk gambling (Abbott et al., 2014; Billi et al., 2014; Dowling et al., 2017; el-Guebaly et al., 2015; Hodgins & el-Guebaly, 2004; Scherrer et al., 2007; Williams et al., 2015). Particularly young males with lower education are shown to be at risk for more problematic gambling, however, we did not identify gender as predictive of low-risk gambling risk transitions (i.e., Bray et al., 2014; Clarke et al., 2006).

The current findings build on cross-sectional evidence on high prevalence problem gambling in lower socioeconomic areas (Kristiansen & Lund, 2022). In Australia and many jurisdictions in Europe and North America, a disproportionately high number of gambling venues and gaming machines are located in more disadvantaged geographical areas (Papineau et al., 2020). Coupled with low levels of help seeking in these low SES areas (Rosenberg et al., 2019; Suka et al., 2015), it is possible that individuals living in these neighbourhoods are specifically vulnerable to developing and sustaining more serious gambling problems. These findings point to the need for geographically targeted gambling support services, as well as primary and secondary prevention programs targeting lower risk gambling in disadvantaged areas, particularly where number of gambling venues is higher. Critically, these findings can inform policy on improved regulation of the density of gaming machines, or gambling advertising in disadvantaged areas.

### **5.2.2. Impact of COVID-19 on longitudinal transitions**

The current project is the first to report low-risk gambling transitions before, during and post COVID-19. Consistent with previously reported Australian and international data during COVID-19, more individuals in the low-risk group ceased gambling altogether compared to other timepoints, while those in higher risk gambling categories remained at high risk for gambling problems (Biddle, 2020; Suomi et al., 2023; Hodgins & Stevens, 2021; Quinn, Grant & Chamberlain, 2022; Brodeur et al., 2021). In the post-COVID-19 transition, however, more individuals in the low-risk gambling group remained at low-risk for problem gambling compared to other timepoints.

In HILDA data collected prior to COVID-19, reports of the more severe consequences of gambling (borrowing money or selling personal items, feeling they might have a gambling problem) were associated with higher risk gambling transitions in the low-risk gambling group, yet we did not find these associations in the ANUpoll data. Reports of financial problems caused by gambling were longitudinally associated with decreased

gambling before and after COVID-19 in ANUpoll, but not during COVID-19. Personal insight into the financial impacts of gambling may function as a deterrent from future gambling when experienced at lower levels of gambling risk. This finding was not replicated during COVID-19, however. COVID-19 related financial impacts such as sudden unemployment or a reduction in income, may have confounded the financial impacts specifically related to gambling. Alternatively, gambling may have been used to compensate for COVID-19's related financial impacts as suggested by the data in the first year of COVID-19: betting beyond one's means and in larger amounts, as well as financial problems caused by gambling, were associated with transitions to higher risk gambling.

### **5.3. Limitations and strengths**

While the current study has many strengths, the findings of this report, should be interpreted in the context of some of the methodological limitations of the data. One limitation of the HILDA gambling data is that it does not distinguish between non-gamblers and individuals who gambled but did not endorse any PGSI items. Further, the three-year lag between the two timepoints analysed in the HILDA data was unable to capture short-term transitions in gambling risk, and it is possible that individuals experienced multiple transitions over time, similar to other addictions (i.e., Bondy et al., 2021; Koenig et al., 2020). While the ANUpoll gambling data was sufficiently large cross-sectionally, the smaller longitudinal sample available limited some the range of analytical approaches as well as inferential power of our findings. For example, the HILDA longitudinal sample was sufficient for robust regression models to control for basic demographics, however, we were unable to yield these estimates with the ANUpoll data. Similarly, inferences from some of the small cell sizes in the bivariate transitions data in ANUpoll should be made with caution.

Despite these limitations, the current study adds to a growing body of literature that has examined the gambling variables in HILDA and ANUpoll datasets (i.e., Armstrong et al., 2017; Churchill et al., 2020a, 2020b; Biddle et al., 2020; Farrell & Fry, 2021; Gong & Chu, 2021; Koomson et al., 2022; Fogarty, Taylor & Gray, 2018; Mond, Davidson, & McAllister, 2011; von der Heiden & Egloff, 2021; Suomi et al., 2022; Suomi et al., 2023; Tulloch et al., 2022), and extends the few studies that have examined these datasets beyond cross sectional analysis with appropriate longitudinal methods (i.e., Biddle et al., 2020; Fogarty, Taylor & Gray, 2018; Suomi et al., 2023). With further waves of data assessing problem gambling in both of these publicly accessible datasets, more intricate longitudinal modelling could extend this literature, providing stronger evidence of the extent that these variables are associated with low-risk gambling transitions.

## 5.4. Implications to public health approach

The findings of the current study will feed into the *Strategy for gambling harm prevention in the ACT: A public health approach 2019-2024*<sup>1</sup>. Specifically, the outputs of the project directly inform public health initiatives and policy to prevent transitions to more severe gambling. The study specifically builds the evidence base for better and targeted gambling harm prevention strategies relating to low-levels of gambling harm, as well as transitions to more severe gambling over time. In addition, the information generated through the study critically increases the understanding about the specific harm profiles relating to low-risk gambling, that can be used for prevention initiatives through targeting specific demographics in local communities. Given the scarcity of information about specific harms relating to low-risk gambling, this project's outputs can provide critical information to help guide the development of low-threshold self-help tools, and aid in the identification of early signs of problem gambling. In order to contribute to these real-world outcomes, we have outlined below some specific prevention initiatives that are supported by the evidence from the current study.

### 5.4.1. Primary prevention

- Public awareness campaigns and education programs about lower level financial impacts, particularly chasing losses and increasing tolerance, and regrets or guilt about spending money on gambling.
- Educational resources on the first signs of gambling harm/risk.
- Public initiatives to reduce stigma around help-seeking for low-risk gambling

### 5.4.2. Secondary prevention

- Targeting groups who are at risk for low-level gambling and associated harms, AND who are more likely to transition to higher gambling risk:
  - Younger adults aged 18-25 through educational institutions and other youth serving organisations (e.g. sports clubs, community organisations and support services)
  - All levels of educational background (as opposed to just lower levels of education), especially in the ACT.
  - Lower SES areas, including tighter regulation of gambling regarding venue and machine density.
- Resources on how to address low level gambling harms, including referral pathways for financial counselling and associated help services.

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<sup>1</sup>[https://www.gamblingandracing.act.gov.au/\\_data/assets/pdf\\_file/0009/1436580/Strategy-for-gambling-harm-prevention.pdf#:~:text=The%20Strategy%20provides%20a%20guide,%2F20%20to%202023%2F24.](https://www.gamblingandracing.act.gov.au/_data/assets/pdf_file/0009/1436580/Strategy-for-gambling-harm-prevention.pdf#:~:text=The%20Strategy%20provides%20a%20guide,%2F20%20to%202023%2F24.)

- Low threshold help-services for lower levels of harm, particularly targeted to more socioeconomically disadvantaged areas.

#### **5.4.3. Tertiary prevention**

- The implementation of low-risk gambling guidelines through government gambling regulation.
- Strengthening low threshold supports in the community, including self-help strategies.
- Family member support and awareness to enhance help-seeking for those with low level gambling problems.

### **5.5. Conclusion**

The current project provides novel insights into low-risk gambling, a group that has been shown to account for the largest proportion of all gambling harm on a population level. These data are especially timely as they can be used to inform public health prevention strategies to target factors related to transitions to more severe gambling, as well as to enhance protective factors related to transitions to less severe gambling. The current findings can be used for prevention initiatives across primary, secondary and tertiary levels of prevention, specifically around increasing awareness of what lower levels of gambling harm might look like, risk factors for higher risk gambling, and specific strategies for individuals who wish to address lower level gambling harms, either related to their own or someone else's gambling.

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