Report to the Ministry of Health
Feedback to MOH re Emerging Trends in National & International Literature

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Literature	Findings	Comment
Gambling on smartphones: a study of a potentially addictive behaviour in a naturalistic setting Authors: James R.E, O'Malley C & Tunney R.J. Eur Addict Res 2019; 25: 30-40 DOI:10.1159/000495663	• The authors note that new activities, media, or potentially harmful activities that become easier to access through new technologies, have the potential to increase harm or addiction; they posited that mobile gambling, and its continued accessibility to gambling, has the ability to cause profound impact upon behaviours. • They further noted that mobile gambling was becoming increasingly popular, especially with young adults, with particular growth in sports gambling, with live-action betting being heavily promoted. • The authors posited that smartphone users persevere with their use of phones intermittently for short periods of time, and that these behaviours, when combined with gambling, can make the gambling even more perseverative, affecting the acquisition of excessive gambling, as well as resistance to extinction despite continued losses. • The authors stated that whereas those already addicted to gambling are particularly at risk, there is a wider population at risk because of the peculiarities of mobile gambling; these include reinforcing delays after a win as opposed to a loss. These	• This research, in its focus upon sub-clinical perseverance by gamblers, raised the importance of further research required into the specific aspects of smart phones that may cause even those without pre-existing gambling risk to increase risk for gambling harm. • Most focus has been upon those with pre-existing gambling harm, as stated by the authors, with the assumption that increased accessibility provided by smartphones exacerbates the gambling harm. This research enabled evidence provided by an app to measure the impact of variable reinforcement and extinguishing schedules similar to gambling and gaming in a real time study. • This also enabled at-risk or sub-clinical behaviours to be analysed, an important much larger population exposed to gambling

non-problem gamblers could be exposing themselves to risk because of the idiosyncrasies of mobile phones, and the design of programmes. • The authors, in respect of this wider non-addicted population, describe a commonly held belief in mobile gaming and gambling that small wins, near misses and losses encourage greater levels of engagement, but because of their often trivial payoffs, their risk for harm is relatively benign. • Instead, the authors contend that those aspects of mobile gambling make them even more addictive. Greater wins and reinforcement, they contend, are associated with longer delays between gambles, with a greater likelihood of stopping gambling prematurely. • An app was designed to provide a random schedule of reinforcement on smartphones with multiple reward levels. After a period of time the participants would be unable to win more money (extinction) and could choose to stop playing. Higher playing despite not being able to win was equated with greater perseverance and addiction. • N=29 gamblers made over 45,000 gambles over 642 gambling days. Most participants continued to persevere for multiple plays despite unavoidable losses. Following larger wins, there were increased delays in returning to gamble. • The authors posited that design of games (particularly gambling and gaming convergences) can be 'fine-tuned by designers to elicit the desired behaviour by users, even in the face of unsuccessful, frustrating outcomes'. • Because of the nature of the use of smartphones, these built-in delays in their use even following reinforcement (which may cause even greater reinforcement - 'post-reinforcement pauses'	-like reinforcement schedules and a growing interest when measuring a burden of harm approach on a population. • This further allowed testing of the hypothesis that pausing following a significant win can be even more reinforcing, and that this occurred regularly on smart-phones because of the common-usage patterns that these new technology devices for gambling provide. An alternative to early significant wins increasing risk for gambling harm behaviour could also be due to the alternative delay (positive reinforcement pauses), suggesting even higher risks for development of harm from gambling may arise from this new technology use. • From the perspective of a treatment approach for those at-risk for gambling harm, as well as established harm, treatment may emphasise the need to avoid smartphones, as well as relapse prevention application. • More research may be required to support these new and innovative approaches (e.g. use of apps to simulate gambling), however this research does raise the possibility that smartphones may inherently raise the risk for gambling harm, and that this risk may not be restricted to accessibility factors.

	or PRPs) plus designs of gambling apps, risk may increase from mobile gambling apps. Near misses were also related to perseverance.	
Effects of gambling diagnostic criteria changes from DSM-IV to DSM-5 on mental disorder comorbidity across younger, middle-aged, and older adults in a nationally representative sample. Authors: Nicholson R, Mackenzie C, Afifi T, Sareen J J of Gambling Studies, March 2019, 35, 307-320	• The authors noted that many people affected by Gambling Disorder (DSM-5) are also contemporaneously affected by one or more other mental health disorders. • When describing this disorder in DSM-IV (Pathological Gambling), the threshold was 5 criteria existing out of a possible 10. With the revised DSM-5, the number of criteria required to meet the threshold reduced to 4 (out of a reduced possible 9). • With the likely increased pool of people who will meet the criteria, there may be a change in prevalence in co-existing mental health (including substance use) disorders. • The authors analysed data from an earlier survey (the National Epidemiological Survey for Alcohol & Related Conditions), noting that application of each of the two DSM thresholds substantially changed findings, with prevalence of Gambling Disorder 'near doubling' with the new criteria threshold under DSM-5. • The authors also sought to ascertain whether co-existing mental health disorders changed for those meeting the criteria for Gambling Disorder, and further, whether this changed across different age groups (younger, ages 18-34 years; middle-aged, 35-54 years; older, 55 years and over). • Although prevalence increased, there was no significant change in the prevalence overall of co-existing mental health (including substance use) disorders for the DSM-IV and DSM-5 samples. • However, older adults in the later DSM-5 Gambling Disorder were found to be more likely to be impacted by an anxiety disorder, in addition to another mental health/substance use	• These findings provide unexpected outcomes, contrary to the authors' and general expectations. The less-restrictive threshold would suggest that co-existing likelihood for those experiencing the clinical level of harm would reduce, yet the findings found no differences in the overall sample when the two criteria were applied, but there was an increased risk for harm through raised prevalence of co-existing Gambling Disorder and other mental health issues in older problem gamblers. • This increased risk raises concerns for the use of screens validated against earlier (more restrictive) DSM-IV standards. For older clients who may meet the less restrictive DSM-5 criteria but score as sub-clinical risk or harm under such a screen, but be impacted by other anxiety/other disorders, harm may be high because of increased co-existing disorders. Research has noted that co-existing mental health problems can exacerbate harm from gambling, yet there is the risk that such screens may be under-estimating harm. • Further research may be warranted to ensure that current commonly used gambling harm

	disorder when compared with DSM-IV pathological gambling samples. • There was a significant increase for anxiety disorders in those aged 55 or over, rising from 23% of those meeting pathological gambling in DSM-IV, to 44% in Gambling Disorder in DSM-5. • A similar significant finding occurred with 'any mood, anxiety, alcohol, or other substance use disorder' for DSM-IV pathological gambling (45%) rising to 70% for Gambling Disorder in DSM-5. • This finding was contrary to the expectation that co-existing prevalence would reduce with the greater potential for diagnosis of Gambling Disorder, and indeed increased the prevalence in the older sample. • A conclusion was drawn that older clients reporting gambling problems should also be screened for co-existing mental health and substance use disorders	screens do correctly identify positives under the new DSM-5 criteria; in addition, the substantial re-estimation of positives in the AOD population (doubling) suggests the opportunities and importance of screening for gambling harm in these populations.
Self-directed gambling changes: trajectory of problem gambling severity in the absence of treatment. Kushnir V, Godinbo A, Hodgins D, Hendershot C & Cunningham G. J of Gambling Studies, December 2018, 34(4), 1407-1421.	• The authors noted that most problem gamblers don't seek treatment; instead use self-help strategies, or review their cognitions and adapt (or continue with gambling). • However, information on barriers was well researched, and they found limited research on self-directed changes, with few identifying developments into the future. • A sample (N=204) of non-treatment-seeking problem gamblers were followed over 18 months to identify changes in gambling harm severity and behaviour change with these participants who identified that they desired to reduce or stop their gambling. Those that enrolled in formal treatment during the study were removed (N=167 completed). • To be eligible, the authors restricted participants to 19 years of age or over, scoring 5 or more on the PGSI, and to be	• Although in reviewing this research, BASIS (Brief Addiction Science Information Resource, Harvard) noted that participants had to contact the researchers to participate (and may therefore represent those with severe gambling harm who were highly motivated to quit/reduce); and although during the study they were contacted by the study staff (which may have encouraged them to quit), there was still evidence that self-directed change was possible. • This is an interesting study as it is well recognised that few gamblers experiencing problems seek out help for their gambling

	considering quitting or cutting back their gambling. Participants were grouped into three PGSI categories (below 12; between 12-17; and above 17).	harm, and may prefer self-help strategies when concerned about cost, stigma, judgement, and other barriers.
	• The noted that despite the lack of formal treatment, that they were able to identify reductions in gambling harm severity, frequency of gambling and amount gambled, and whether these changes were maintained. • They applied various 'mixed effects models' to find that beneficial changes were observed over 6-9 months, and those experienced within the first 12 months were maintained over a further 6 month observation period. Those with most severe problem gambling were observed to demonstrate most beneficial reductions in severity at 3 months when compared with the lower two categories. • Of the participants, 28.7% reported severity scores below problem levels for 12 months, while 11.1% were within low-risk levels at 18 months. • Changes were significant (frequency of gambling, money spent, fewer gambling-related problems). • The authors concluded that self-directed changes can result over a short time when problem gamblers are motivated to quit or reduce their gambling, and these can occur even with the most severe problem gambling.	• However, because help-seeking is low, and that for many, gambling is both the cause and solution to financial problems, it may well be that this group of participants may be non-representative of those with severe gambling harm, and may represent a quite special group who are more motivated, more compliant with self-imposed strategies, and who may be more likely to control their gambling once they set their mind to it. • Nevertheless, many were experiencing severe problems as described by their PGSI scores of over 17, where a score of 8 or more indicated the presence of existing problems occurring from their gambling. • That these most severe gamblers demonstrated the most improvements is an important achievement, as is the perseverance of the changes. • It must also be taken into account that 71.3% of participants did not significantly improve their harm, and it may be possible that these people may benefit from a more intensive, professional support to address their gambling harm.
Are video games a gateway to gambling? A	• The authors noted that there is a rapid expansion in both gaming and gambling opportunities and varieties of both. They noted	• As concerns arise around the merging of gaming and gambling technology, this study

longitudinal study based on a representative Norwegian sample. Authors: Molde H, Holmay B, Merkesdal A, et al J of Gambling Studies, 2019, 35: 545-557.	also that both gaming and gambling were converging online and digitally, but that little was known about their relationship. Gambling was becoming increasingly digitised while gaming was increasingly using themes and elements of gambling, and 'recruitment' from one problem category to the other is imminent. • In contrast to previous research which appeared to be cross-sectional and non-representative samples, this design was a longitudinal general population sample conducted over two years (two points of measurement: 2013-2015) controlling for gender (males approximately half at 47.2%) and age (16-74 years). • Video gaming problems were assessed using the Gaming Addiction Scale for Adolescents, and gambling problems using the PGSI screen. • The was a positive relationship between problem gaming scores and later problem gambling scores on the PGSI, but no reverse relationship. • It was concluded that video gaming problems appeared to be a gateway to problem gambling. Further research into effects of types of games, the bias between males and gaming problems, and younger gamers possibly being at greater risk.	raises a further concern that the much greater participation in gaming (and the larger population experiencing gaming problems when compared with the size of the gambling harm population) may transition across to gambling problems. • The positive relationship in a fixed direction suggests, as the authors posit, that gaming may be a pathway to gambling problems. • The relative absence of treatment services in NZ for gaming problems suggests that because of this possibility, specialised gambling treatment practitioners may appropriately be providers of interventions for those experiencing these gaming problems as both a preventative measure to later gambling problems, and to provide help for the converging nature of gambling and gaming, which may not be clearly recognised as a new age gambling problem.
Predictors of dropout in disordered gamblers in UK residential treatment Authors: Roberts A, Murphy R, Turner J & Sharman S. J of Gambling Studies, 2019	• The authors noted that although studies into drop-out from outpatient gambling treatment programmes existed, few addressed inpatient programmes, where more severe and chronic gambling and gambling-related problems were experienced by their clients. • In particular, they addressed whether variables occurred when clients chose to leave as opposed to being excluded (enforced) from the programme.	• This is a study of interest because of the relatively low evidence of reasons for exiting residential programmes for gambling harm, especially the separation in voluntary and forced exits, and also because of recent governmental interest in the possible expansion of residential services for gambling harm treatment.

| Doi.org/10.1007/s10899-019-09876-7 | • The aim was to identify these predictors of drop-out so as to as to increase compliance, increase retention, and to understand the specific social and clinical factors that influenced these outcomes.
• Data from N=658 clients seeking residential treatment for problem gambling between 2000 and 2015 in UK was analysed to identify predictors of drop-out. Programmes were 3, 6 and 9 months.
• A high proportion of gamblers (51.3%; N=337) dropped out from treatment; of these, 69% (N=233) chose to leave, and 18.7% were asked to leave. The remaining 23.3% left as a result of various reasons that were not seen as equating to drop-out (8% failed assessment of other required criteria, 2.1% arrested, 0.9% referred to other services, 1.3% reasons unclear).
• Predictors for dropping out included older age (over 26 years of age), higher levels of education, higher levels of debt, online gambling, gambling on poker, shorter duration of the treatment, higher depression especially if unreported, and adverse childhood experiences (parental separation, violence, abuse, bullied).
• Predictors of enforced drop-out included lifetime homelessness, less debt, sports gambling, depression, and lifetime smoking.
• There were examples of factors that protected against enforced drop-out, including those gamblers on longer programmes (9 months), those who received previous treatment and were taking medicine.
• Higher scores on the PGSI did not predict drop-out as there were no differences in PGSI scores for 'remainers' or drop-outs. | • It was evident that (in the UK) drop-out rates for gambling treatment are high (half) but that this is at a similar level for community treatment, and this may suggest an important topic for research.
• It is seen that less than one-quarter are force-exited for non-compliance, and that the predictors of voluntary drop-out included undisclosed depression, addressing adverse childhood trauma/incidents, higher debts, and shorter programmes; the latter appearing to be counter-intuitive.
• It would appear higher levels of gambling disorder as identified by the PGSI is not a factor, however addressing co-existing issues is an important focus of any programme.
• The age factor (older than age 26) as an influence for drop-out also appears counter-intuitive, as impulsiveness is often attributed to younger age, and yet in this case (although the age 26 would also appear to be young), older gamblers were more inclined to drop-out.
• These findings may assist in the development of a residential programme for gambling harm treatment where a goal was to maintain clients in therapy, a known positive outcome for behaviour change. |

	• Drop-out numbers for residential treatment of gambling approximated those dropping out from non-residential treatment.	
Consumer perspectives of a multi-venue gambling self-exclusion program: a qualitative process analysis. Authors: Pickering D, Nong Z, Gainsbury S, Blaszczynski A. J of Gambling Issues, 2019 dx.doi.org/10.4309/jgi.2019.41.2	• The authors noted that although self-exclusion is an important strategy to reduce gambling harm, low uptake and non-compliance can limit its effectiveness. • They saw the need for a 'consumer perspective' to raise awareness by those experiencing gambling harm, that it is an effective tool to engage with. • The authors engaged with 13 current users of multi-venue exclusion, and 7 former users (in NSW, Australia), conducting interviews using open ended questions, about their experiences. • Participants provided a range of positives and negatives of the multi-venue exclusion system, and provided suggestions for improvements. • The multi-venue system was found overall as being beneficial. • Negatives were: the lack of public awareness of this option; that the registration process in NSW was overly complicated; a perception that venues were either unwilling to identify them even if excluded when they re-entered, or had poor ability to identify them even if willing to exclude them; and that detection systems required considerable improvement. • The participants had mixed interactions with venue staff when seeking to exclude, suggesting important room for improvement. • Participants supported the importance of the role of therapists in maintaining exclusion from commencement until the self-exclusion period ended.	• With the roll-out of the improved multi-exclusion option in NZ, this research provides a timely reminder of potential barriers and opportunities to enhance outcomes. • Many of the findings may be already known and have been addressed, with streamlining of processes in NZ through specialist roles involved in receiving of information and engaging with venues. • Staff training in venues remains the responsibility of venues/trusts, however, variability in the initial process of monitoring potential problem gamblers, approaching them, providing information and options to exclude as required by the NZ Gambling Act may require further focus, especially if the findings of this study also apply to NZ. • Ideally facial recognition technology may address many of the research-identified needs, however, the initial engagement and delivery of the information in an appropriate, empathetic and motivational manner may be critical for the uptake of the multi-exclusion option. • The additional perception by the participants that there is an important role for therapists during the exclusion period is also a reminder

	• The authors concluded that venue operators should have a greater role in 'marketing' the multi-exclusion option in order to raise awareness of its availability and benefits. • Strategies to improve the process of registration under the multi-venue process would benefit uptake, while use of new technologies to identify excluded gamblers from re-entering during the exclusion period would benefit. • Improvement in training of venue staff in facilitating gamblers to self-exclude and assist in the exclusion process was also seen as an important aim, as well as venue operators developing links with gambling treatment services.	that gambling harm may not be solved through technology alone.
Gambling disorder, increased mortality, suicidality, and associated comorbidity: a longitudinal nationwide register study. Authors: Karlsson A, Hakansson A. J of Behavioral Addiction 2018 Dec, 1:7(4): 1091-1099.	• It was noted by the authors that Gambling Disorder (GD) appears to be a risk factor for suicide, but that the other causal factors associated with non-suicide deaths of those affected by GD were not widely addressed. • A nation-wide register in Sweden of inpatients and outpatients diagnosed with GD during 2005-2016, and their co-existing diagnoses of diagnosed health conditions (N=2099; 1,625 males, 474 females; aged 18-83 years, mean 36.5 years), were calculated for each diagnostic group and standardised mortality ratios identified to them and the general population. • Of the 67 who died, 21 (31%) were attributable to suicide. • Calculations identified that mortality rates for problem gamblers were 1.8 times higher than the general population (for those aged 20-74 years), while suicide rates for problem gamblers were 15 times that of the general population. Age (older) and cardiovascular diseases were higher risks for those with GD dying (non-suicide), while GD and suicide were increased over the general population through higher depression diagnoses.	• This research is a timely reminder of the need to identify suicidal ideation for those experiencing gambling harm, as well as awareness that depression substantially increases the risk for suicide completion. • The level (15 times higher) is an important indicator of the level of risk that those impacted by gambling are subjected to, and the need to make regular enquiries.

| | • The authors concluded that both mortality and suicide rates were significantly higher for those affect by GD, and that although co-existing poor health did not predict higher mortality rates for GD clients, coexisting depression and GD did predict suicide; this indicated the need for raised awareness of mortality for those affected by GD and the need to provide interventions for co-existing health problems. | |