

Recommendations for International Gambling Harm-Minimisation Guidelines: Comparison with Effective Public Health Policy

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Abstract Problem gambling represents a significant public health problem, however, research on effective gambling harm-minimisation measures lags behind other fields, including other addictive disorders. In recognition of the need for consistency between international jurisdictions and the importance of basing policy on empirical evidence, international conventions exist for policy on alcohol, tobacco, and illegal substances. This paper examines the evidence of best practice policies to provide recommendations for international guidelines for harm-minimisation policy for gambling, including specific consideration of the specific requirements for policies on Internet gambling. Evidence

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indicates that many of the public health policies implemented for addictive substances can be adapted to address gambling-related harms. Specifically, a minimum legal age of at least 18 for gambling participation, licensing of gambling venues and activities with responsible gambling and consumer protection strategies mandated, and brief interventions should be available for those at-risk for and experiencing gambling-related problems. However, there is mixed evidence on the effectiveness of limits on opening hours and gambling venue density and increased taxation to minimise harms. Given increases in trade globalisation and particularly the global nature of Internet gambling, it is recommended that jurisdictions take actions to harmonise gambling public health policies.

Keywords Problem gambling · Addictions · Public health policy · Best practice · Internet gambling · Harm minimisation

Introduction

Although the majority of people who gamble do so relatively infrequently and within affordable means, problem, and the more severe, pathological gambling are increasingly recognised as significant public health issues with a prevalence of one to four per cent in the adult population (Fong et al. 2011; Ministry of Community Development Youth and Sports 2008; Petry 2005; Productivity Commission 2010; Welte et al. 2002). Problem gambling is characterised by difficulties in limiting money and/or time spent on gambling, leading to adverse consequences for the gambler, or others, such as health and psychological disorders, relationship breakdown, bankruptcy, crime and suicide (National Research Council 1999; Neal et al. 2005). Gambling, in its various forms, is a relatively popular recreational activity, with estimated worldwide annual adult participation rates ranging from 65 to 82 % (Abbott et al. 2004; Ministry of Community Development Youth and Sports 2008; Petry 2005; Productivity Commission 2010; Shaffer et al. 2004; Volberg and Vales 2002; Welte et al. 2002; Wood and Williams 2010). Despite its popularity and economic contributions through taxation and employment, governments and gambling operators have a responsibility to implement public health-oriented harm-minimisation measures (Monaghan and Blaszczyński 2010). Public health interventions aim to reduce harms by shifting the focus from the individual problem gamblers to focusing on the context and environment in which gambling is occurring (Adams et al. 2009).

It has been proposed that ‘gambling disorders’ be categorised along with substance use disorders in the soon to be released fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the 11th edition of the International Classification of Diseases (ICD). This recommendation is based on evidence demonstrating high rates of co-morbidities between substance use disorders and pathological gambling, similarities in clinical presentations, some parallel biological dysfunctions, evidence of shared genetic predisposition, and overlap in treatment approaches (Grant et al. 2010; Leeman and

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Potenza 2012; Petry 2010; Potenza 2009). A re-classification of pathological gambling would have implications for public health policy that require ongoing consideration. Given that many of the major advances in reducing harms from addictive substances have resulted from public health interventions (such as smoke-free environments, and random breath testing for drivers), it is reasonable to expect that a similar approach would be effective in addressing gambling-related problems (Adams et al. 2009).

There are many definitions of harm reduction and debate continues as to the most appropriate use of this term (Gainsbury and Blaszczynski 2012). In global terms, *harm-minimisation strategies aim to minimise the risks associated with gambling and facilitate gambling within appropriate limits, without overtly disturbing those who gamble in a non-problematic manner* (Productivity Commission 2010). Critics of this view argue that this stance is a morally objectionable approach as it fails to condemn gambling and sends the message that gambling is acceptable and can be used in a non-harmful manner (Carter et al. 2012). Harm minimisation strategies utilise public health and social regulatory approaches that have a wide-reaching scope in targeting all segments of society including subpopulations considered to be vulnerable or 'at-risk'. Although harm-minimisation strategies should be based on empirical evidence, there is a deficit of research on the effectiveness of gambling harm-minimisation strategies, making it difficult to design appropriate policies. This is recognised by organisations such as the Australian Productivity Commission, in addition to leading experts, who have called for more independent research to inform policy decisions (Productivity Commission 2010; Williams et al. 2012). The deficiency of effective gambling regulation is particularly apparent as it relates to Internet gambling, which, since the mid-1990s, has rapidly evolved and expanded internationally outpacing regulation in many jurisdictions (Gainsbury and Wood 2011). Public policy regarding Internet gambling is complicated by the difficulty in controlling access and availability of Internet gambling sites, the relative anonymity of users and operators, lack of physical boundaries between jurisdictions, and disparity in physical locations of players and providers (Gainsbury and Wood 2011). Multiple international studies suggest that Internet gamblers are more likely to be problem gamblers as compared to land-based gamblers (Gainsbury 2012; Griffiths et al. 2011; Ladd and Petry 2002; Olason et al. 2011; Wood and Williams 2011). This suggests that Internet gambling merits specific attention and is an important target for harm-minimisation.

In recognition of the need for consistency between international jurisdictions and the importance of basing policy on empirical evidence, the World Health Organisation (WHO) has published guidelines on alcohol and tobacco policy (WHO 2003, 2011a) and international conventions exist for illegal substances (UN 1961). However, no corresponding standards have been developed to guide regulators in establishing evidence-based gambling policies or enabling consistency between international jurisdictions.

Babor et al. (2010) conducted a comprehensive review of evidence from a range of alcohol policies which may guide development of similar standards for regulating gambling. Despite the similarities between alcohol and gambling, there are key differences that impact the policies required to minimise harm for both fields. Notably, although there is some evidence that gambling may manipulate neurological functioning (Brewer and Potenza 2008), gambling problems are not associated with a substance that has a physiological effect and results in a chemical dependency. In contrast to substance use, problem gambling cannot be defined in a specific level of participation; excessive gambling is relative to individual disposable discretionary income and time. A dilemma for policy-decision makers is that the characteristics of gambling that lead some players into serious harm can be much the same characteristics that make them fun for recreational gamblers

[e.g., fast games and payouts, entertaining and immersive sounds, music, and graphics, elements of (real or illusionary) control] (Gainsbury and Blaszczynski 2012). Therefore, policies must consider the most appropriate and effective interventions that balance the needs of individuals (recreational vs. problem gamblers) and society.

Taking these key differences into consideration, the aim of this paper is to provide recommendations for international guidelines for harm-minimisation policy for gambling including Internet gambling. These recommendations will be based on the framework provided by Babor et al. (2010) in relation to evidence-based alcohol policies. The key issue to be considered is whether the ‘best-practice’ policies suggested by Babor et al. (2010) that have face validity for gambling can be extrapolated to guide gambling policies. The recommendations in this paper are intended to guide regulators and policy makers in creating suitable policies and to suggest directions for future research. This paper is not intended to be a final answer to policy debates, but rather pose some deliberate questions to engage and stimulate discussions that may lead to effective and harmonious policies.

Legal Age

The rationale for restricting the legal availability of substances through age limits is to make it more difficult for children, adolescents, and young adults to obtain these substances, and reducing consumption and related harms (Babor et al. 2010). This is particularly important since early onset of substance use and gambling participation are associated with significant problems later in life (Gupta and Derevensky 1997; Productivity Commission 2010; South Australian Department for Families and Communities 2007; Volberg et al. 2011; Welte et al. 2009; WHO 2011a; Wynne et al. 1996). Research indicates that higher age limits for the sale of alcohol decrease adolescent alcohol consumption (Wagenaar and Toomey 2002) and appear to decrease alcohol-related harms, such as road fatalities, crime, assaults, and drunkenness convictions (Wagenaar 1993). Furthermore, there is evidence that increases in the legal drinking age (e.g., Maine, USA) lead to reductions in alcohol-related property damage crash involvement among drivers aged 18–19 (Wagenaar 1983). On the other hand, lowering the legal drinking age from 20 to 18 years has shown to increase the occurrence of alcohol-involved emergency room admissions and traffic crashes among 15–19-year-olds in New Zealand (Kypri et al. 2006; Everitt and Jones 2002). Research on the effectiveness of age limits for tobacco also shows that higher age limits decrease adolescent tobacco use and related harms (Ahmad and Billimek 2007; Stead and Lancaster 2008).

In jurisdictions with age restrictions for gambling, adolescents engage minimally in regulated gambling (Gerstein et al. 1999; Hurrelmann et al. 2003; Moore and Ohtsuka 1997; Volberg et al. 2011), indicating that legal age limits for gambling are generally effective. Both illegal participation and an early onset of gambling participation are associated with problem gambling (Gupta and Derevensky 1997; Productivity Commission 2010; Rahman et al. 2012; South Australian Department for Families and Communities 2007; Volberg et al. 2011; Welte et al. 2009; Wynne et al. 1996). *These findings indicate that age restrictions are appropriate to reduce problem gambling.* Furthermore, since executive brain functions are still developing throughout young adulthood [18–25 years (Somerville and Casey 2010)], from a developmental perspective, *the legal age of 18 years may be too low to protect adolescents and young adults from hazardous behaviours* (Steinberg, 2008). The effects of increases and decreases in age limits for the sale of

alcohol as described in scientific literature (Wagenaar 1983; Kypri et al. 2006; Everitt and Jones 2002) underline this assumption. Legal age restrictions appear to impact youth gambling involvement; a national US telephone survey of adolescents and young adults found that the number of types of gambling in which a respondent was old enough to participate legally had a positive relationship to gambling involvement, including problem gambling (Welte et al. 2009). The results of this survey found that being old enough to participate legally in specific forms of gambling was positively related to the frequency of gambling on these types. Similarly, preferences for gambling among youth appear to increase for legal activities once these become available and decrease for informal and unregulated games (Winters et al. 1995). Therefore, it may be sensible to also increase the legal age for gambling, for example similar to U.S., Greece, Belgium, Portugal and Singapore which limits gambling before the age of 21, although it is noted that public support would be needed for such policy measures to work effectively.

Enforcement of the legal age contributes importantly to increasing provider and user compliance (Holder et al. 2000; Reynolds 2003; Schelleman-Offermans et al. 2012; Wagenaar et al. 2000). For land-based gambling, enforcement of the legal age can be regulated by increasing inspections of gambling venues and enacting penalties. However, the regulation and enforcement of age limits for Internet gambling is challenging, because the age verification of users takes place in an online (and possibly international) setting. *Agreements between gambling operators and domestic and international jurisdictions should be made to regulate online gambling with a system that is capable of cross-checking age verification against an existing international database.* Although care must be taken to protect customer identity, data encryption programs can be used to protect sensitive details (Gainsbury 2011). Agreements between international regulators to cross-check age and identification documents would be consistent with commonly held policies of protecting vulnerable minors.

It is also important to increase knowledge about ways to restrict unregulated gambling by adolescents. Parents play a crucial role in preventing and restricting unregulated substance use among adolescents (Koning et al. 2011; Schelleman-Offermans et al. 2011; Van der Vorst et al. 2006, 2005). However, parents may have low levels of concern regarding youth gambling as compared to other risky behaviours (Campbell et al. 2011; Felsher et al. 2004; Vachon et al. 2004). Furthermore, parental facilitation of gambling appears to be associated with increased gambling behaviours and positive attitudes about gambling as well as risky gambling among adolescents (Kundu et al. 2012). Subsequently, public health campaigns have been launched to increase awareness of the importance of restricting youth gambling amongst parents, for example, by discouraging parents to give scratch or lottery tickets as gifts to children (McGill University News Room 2010).

Licensing and Monopolies

Licences are typically required for production, distribution, and sales of commodities or services with addictive potential, and provide an opportunity for harm-minimisation strategies. Government-sanctioned licensing systems for alcohol are present in 63.7 % of the WHO Member states, whereas monopolies, the most restrictive form of governmental control, exist in 15.5 % (WHO 2011a).

There is strong evidence that off-premise monopoly systems lead to reduced alcohol use and related problems and that elimination of off-premise monopolies can increase consumption (Alcohol and Public Policy Group 2003). Licensing of the locations where products can be consumed or bought provide additional opportunities to reduce harm

(Stockwell 2011; WHO 2011a). Licensed premises can be subjected to regulations of the training and licensing of staff, the entertainment allowed, and the maximum number of visitors (Babor et al. 2010). In addition to licensing the sale of alcohol, licensing can modify the commercial drinking environment. Training, certification, and tools to improve the drinking environment (e.g., risk assessment and in-house policy guidelines) help reduce problems related to heavy alcohol use (Babor et al. 2010). In general, changes in availability can have large effects in jurisdictions where there is strong support for and enforcement of these measures.

Monopoly and licensing policies are relevant to gambling. In the European Union (EU), nine out of the 27 member states had a capped number of licenses for casinos and gambling halls in 2006, with six countries having a monopoly policy for casinos, horse racing, or sports betting (Swiss Institute of Comparative Law 2006). For Internet gambling, national jurisdictions in the EU sometimes set limits on the number of licences that may be held for online gambling services or ban them altogether (European Commission 2011). Although land-based gambling activities can be regulated relatively effectively, Internet gambling offers challenges as operators can operate offshore and provide services to residents relatively easily, with limited options for prosecution by jurisdictions whose regulations they violate. Given the difficulty in prohibiting Internet gambling, some jurisdictions, for example, Australia, offer licenses for some forms of online gambling considered less harmful, including wagering on sports, but not in-play wagering, which allows fast-paced betting on outcomes quickly determined. Furthermore, Australian operators are required to provide some responsible gambling and harm-minimisation tools, such as self-exclusion (Gainsbury and Wood 2011). The provision of licensed Internet gambling aims to limit the appeal of illegal offshore gambling, which may not provide harm minimisation measures (Gainsbury and Wood 2011).

Thus, *the implementation of licensing systems that include requirements for responsible gambling and consumer protection strategies for gambling is supported and appears to be implementable*. Future research should evaluate the effectiveness of licensing in controlling gambling behaviour, including for Internet gambling. Regulators should encourage or require gambling operators to share relevant data (with commercially sensitive information removed) with researchers and collaborate by providing access to venues where appropriate.

Opening Hours and Outlet Density

There is strong evidence for the effectiveness of regulating the days and hours in which alcohol may be sold, and reducing the number and concentration of alcohol outlets (Babor et al. 2010). A recent review (Stockwell 2011) found that changing the opening hours of on-premise venues changes rates of alcohol-related harm in the corresponding direction. The size of the effect of limiting alcohol sales can be substantial; for example, when hotels in the Australian city of Newcastle were required to close at 3:30 a.m., rather than 5:00 a.m., late-night assaults fell by 37 % (Kypri et al. 2011).

Restricting outlet density also has the potential to reduce alcohol-related harm. Regionally, the number of alcohol outlets has been positively associated with alcohol-related problems, such as violence, in that area (Babor et al. 2010). Although studies also find a link between the number of alcohol outlets and alcohol consumption, the research evidence is not as consistent as that between outlets and alcohol-related problems (Babor et al. 2010; Livingston 2008, 2011a, 2011b).

Restrictions on hours of operation and limiting the density of venues appear relevant to gambling. Many jurisdictions have restrictions on the hours of operation of gambling venues, although casinos are often exempt (Handcock 2011). In Nova Scotia, Canada, the hours of electronic gaming machines (EGMs) venues were restricted after midnight in response to data suggesting that problem gamblers were playing in the early morning (Corporate Research Associates 2006). Evaluation of this modification found that some higher-risk gamblers reduced their expenditures; while some gamblers shifted to other venues after midnight overall net gambling revenues decreased by 5–9 % (Corporate Research Associates 2006). Similar results have been found in the Canadian province of Newfoundland (Corporate Research Associates 2006), and in Australia (Productivity Commission 2010), although revenue subsequently returned to previous levels. *Therefore, the restriction for opening hours of gambling venues appears to have a small, but potentially important impact on reducing gambling-related harms.*

Another form of outlet density regulation is to limit gambling activity to a specific location (destination gambling venue) or placing limits on gambling venues near areas where children may be exposed to gambling, such as schools, playgrounds, and shopping centres. However, there is limited evidence to support the effectiveness of these restrictions on gambling participation or related harm. There is some evidence that the rates of gambling harm may be higher in locations closer to gambling venues (Barratt et al. 2013; Delfabbro 2008; Storer et al. 2009). However, while proximity to gambling venues may have exposure effects, the strength of this relationship appears highly susceptible to contextual variations, such as demographic profile, socio-economic characteristics, and other risky behaviour (Young and Tyler 2008). Although some work has started in this area, *further research should consider the complex interplay of factors that may influence the effectiveness of restrictions on locations and density of gambling opportunities in reducing rates of gambling-related harms.*

Pricing and Taxation

The rationale behind tax increases or other pricing regulations on risky products to reduce consumption and related harm is that increasing the economic costs of a product relative to other products will reduce the demand (Babor et al. 2010). For example, frequent price promotions in drinking establishments are associated with higher binge drinking rates among college students (Kuo et al. 2003). Indeed, higher prices of alcohol or tobacco are associated with lower consumption levels and less harm (Farrell et al. 2003; Kuo et al. 2003; Markowitz and Grossman 1998; van den Berg et al. 2008), although a balance is required to prohibitively high prices that may lead to black market distribution.

Tax increases and price regulations can be applied to both land-based and Internet gambling and can be expected to decrease gambling activities and related harm. Gambling operators typically must pay to obtain a license, pay tax, and make mandatory contributions to community benefit funds and sports or racing organisations. Tax increases may be passed directly to the player by decreasing the prize to be won, or operators may make other changes to recoup funds, which would presumably all decrease consumer enjoyment.

Increasing the price of participating in the legal market may increase the attractiveness of illegal markets; therefore, tax increases can only be effective if illegal markets are under control (Room et al. 2002). Appropriate levels of taxation are particularly important for Internet gambling as some illegal online gambling operators may be based in jurisdictions that have very low tax rates, making them able to offer high returns to players (Gainsbury

2012). There may also be a tendency for governments to “price compete” on tax rates against one another (Eadington 2004). Therefore, a high tax rate for Internet gambling operators may result in operators being unable to offer competitive products and they may choose not to operate in the jurisdiction or players may play on offshore sites that offer fewer player protections. For example in France, where high tax rates for sports betting result in a large difference between the payout ratio on legal and illegal websites, the illegal market represents 75 % of the total market (MAG Associate Consultants 2011). It is arguable that, *Internet gambling operators should be taxed at a rate that would enable them to be competitive with the illegal offshore market as it is more beneficial for players to use regulated sites that include responsible gambling tools and strategies than be lured by higher prizes available through illegal gambling sites.* Thus, the tax structure for online gambling may differ from that recommended for land-based gambling and alcohol.

Price regulations designed to minimize expenditure, such as a maximum bet limits and reduced jackpot prizes, aim to reduce the amounts that gamblers are willing to spend. Such policies may be effective as a harm-minimisation strategy for gamblers. Such strategies intend to encourage gambling at recreational levels as an entertainment activity, rather than as a means to obtain potentially large wins by betting high amounts. Support for such policies includes the results of an Australian study in which EGMs were modified to accept a maximum bet of one dollar. This modification resulted in a reduction in EGM sessions, smaller losses, fewer individual wagers, and reduced associated alcohol consumption and smoking (Wardle et al. 2011). Support for reducing jackpot sizes comes from the UK where slot machines, which are widely available but have a maximum prize of £500 are less likely to be associated with gambling problems than fixed-odds betting terminals, which are EGMs with higher limits and maximum bet sizes (Wardle et al. 2011). Therefore, policies in which gambling providers, including Internet gambling operators, are obliged to provide users with options to *place enforceable limits in advance for their monetary expenditure and that limit the maximum prize possible could be used to promote responsible gambling* (Ladouceur et al. 2012; Monaghan 2009; National Council on Problem Gambling 2012). More research, such as simulation studies (e.g., Ahmad 2005), is needed on the effectiveness of increasing taxes and price regulations for gambling.

Brief Interventions

Brief interventions are time-limited, structured therapy, directed towards a specific intervention goal, and can utilise a variety of therapeutic techniques and treatment modalities (Center for Substance Abuse Treatment 1999). In many countries, substantial efforts have been made to improve screening, assessment, and brief interventions for addiction problems, although progress in institutionalizing these improvements has been slow (Roche and Freeman 2004). Removing the stigma from specialist treatment and providing help for individuals who are less severely affected by addictions are urgent tasks for treatment policy (WHO 2011b).

Early intervention programmes have been developed to support managing harmful drinking, which typically precedes the development of alcohol dependence, and causes serious medical and psychological problems. There is evidence for the effectiveness of brief interventions, including Internet-based treatment and self-help options, for other addictive behaviours including gambling (Blankers et al. 2011; Dunn et al. 2001; Gainsbury and Blaszczynski 2011a, 2011b; Hodgins et al. 2001; Hodgins et al. 2004; Miller and Rollnick 1991; Toneatto et al. 2008). Brief interventions are cost-effective for gamblers

and intervention service providers (Emshoff et al. 2007), are effective at increasing motivation to change, and are convenient and timely to complete. Furthermore, online options provide anonymity, which is important to overcome shame and stigma that often prevent people from seeking treatment (Gainsbury and Blaszczynski 2011a, 2011b).

Screening and brief interventions are considered an effective policy measure to control substance-related harm in society (Babor et al. 2010) and are as such endorsed in WHO policy guidelines (WHO 2011a). Therefore, *policy measures regarding minimal interventions to control gambling and related harm are probably effective*. Future research should focus on evaluating experiences with brief intervention policy measures in controlling gambling behaviour. Experiences with screening and brief interventions addressing alcohol use (Babor et al. 2007) suggest that integrating brief interventions for gambling into the healthcare system may be a major but important challenge. Potential barriers include the lack of time for burdened professionals, training and motivation and other organisational factors (Babor et al. 2007). Brief interventions are more likely to be successfully implemented if health care and community workers are reimbursed for their work in delivering brief interventions after a positive screening result and if sufficient training is provided. A meta-analysis by Anderson et al. (2004) found that the training approaches most effective in increasing use of screening and brief interventions by general practitioners are those that have a specific focus on the addictive behaviour addressed and those that discuss multiple types of intervention. Additionally, national policy guidelines should promote the use of these interventions for preventive activities in general practice. Alternatively brief interventions can be provided outside the healthcare system through Internet self-help interventions, which have preliminary support for addressing gambling and other addictive behaviours (Babor et al. 2007; Gainsbury and Blaszczynski 2011a; Monaghan and Wood 2010).

Conclusions

Although the specific and unique characteristics of gambling, and Internet gambling in particular, require careful consideration, the evidence presented here suggests that many of the public health policies implemented for substance use may be adaptable to address gambling-related harms. Table 1a and b summarise the five policies reviewed and their application to gambling and Internet gambling according to (1) potential effectiveness, (2) policy considerations, (3) further research recommendations, and (4) potential challenges for policy consideration and implementation.

For many of the policies considered, evidence and experiences from the alcohol and substance use fields is highly useful to inform the potential success of similar policies for gambling. As gambling is not a substance that can be obtained and used outside venues some policies may be more effective, such as limits to licensed venues, although informal and illegal gambling can still occur. Furthermore, Internet gambling is now highly accessible despite many attempts from jurisdictions to restrict illegal and offshore gambling sites (Gainsbury and Wood 2011).

Given increases in trade globalisation and particularly the global nature of Internet gambling, it is important for gambling-related public health policies to converge between jurisdictions. To an increasing degree this has occurred with alcohol and tobacco policies, providing international cohesion, which may provide a context for evaluation studies leading to evidence-based strategies, and guidance for developing countries (Babor et al. 2010; WHO 2011a). Some evidence of possible effective gambling policies exists and can

Table 1 Public health policies to minimize (a) terrestrial gambling-related harms, (b) internet or online gambling-related harms: effectiveness, recommendations and challenges

Public health policies	Potential effectiveness	Recommendations for public health policy	Recommendations for research	Possible challenges
(a) Terrestrial gambling				
Legal age	+++	<p>The legal age for gambling should be at least 18 years, although preferably 21 and up to 25 years</p> <p>The legal age for gambling should be strictly enforced</p> <p>Parents should be educated about the risks of gambling at a young age.</p>	<p>Investigating ways to restrict unregulated gambling in informal settings and the role of parents and/or teachers in this</p>	<p>Attaining public support</p> <p>The costs of enforcement of the legal age</p> <p>Increasing informal control of parents and other adults in the environment of minors to control unregulated gambling among minors</p>
Licensing and monopolies	+++	<p>A licensing system that includes requirements for responsible gambling and consumer protection strategies for gambling venue owners</p> <p>Regulators should encourage or require gambling operators to share relevant data for research purposes</p>	<p>Investigating what protection strategies for responsible gambling work best for gambling</p>	<p>Attaining public support</p> <p>Enforcement of various license conditions (such as staff training)</p>
Opening hours and outlet density	+	<p>Consider earlier closing times to reduce high risk gamblers</p>	<p>Examining the effectiveness of restrictions on locations and density of gambling opportunities</p>	<p>Attaining public support</p> <p>Government reliance on tax revenue and powerful industry stakeholders may lead to exemptions for certain venues (such as casinos)</p>
Pricing and taxation	+ /+++	<p>Price regulations to minimize losses, such as a maximum bet and price</p> <p>Oblige gambling providers to provide users with options to place limits in advance for their time and monetary expenditure</p>	<p>Simulation studies in which the price elasticity of terrestrial gambling is investigated and related behavioural, health and economic impacts</p>	<p>Attaining public support</p> <p>Increases in black market, unregulated gambling activity</p>
Brief interventions	+ /+++	<p>Brief interventions should be available for those at-risk for and experiencing gambling-related problems</p>	<p>Evaluating experiences with and the effectiveness of brief interventions for gambling</p>	<p>Reaching people at risk for and experiencing gambling-related problems</p>

Table 1 continued

Public health policies	Potential effectiveness	Recommendations for public health policy	Recommendations for research	Possible challenges
(b) Internet or online gambling				
Legal age	+++	Agreements between gambling operators and domestic and international jurisdictions should be made to regulate online gambling with a system that is capable of cross-checking age verification against an existing international database	Investigate whether international agreements on age limits are effective and implementable	Enforcing the compliance to the legal age in an international online setting Formation of international agreement on age standards Age verification mechanisms that protect customer identity
Licensing and monopolies	+++	A licensing system that includes requirements for responsible gambling and consumer protection strategies for gambling venue owners	Investigate the implementation of a licensing policy for Internet gambling	Internet gambling operators can operate offshore and provide services to residents relatively easily, with limited options for prosecution by jurisdictions whose regulations they flaunt
Opening hours and outlet density	Still unknown	Explore possibilities to restrict access to gambling websites in specific geographic areas	Examining the possibilities and effectiveness of restrictions on opening hours for online gambling	Agreement on international enforcement efforts regarding restricted access to websites
Pricing and taxation	+ / ++	International policies on the level of taxes and price regulations Oblige internet gambling providers to provide users with options to place limits in advance for their time and monetary expenditure Internet gambling operators should be taxed at a rate which enables them to be competitive with the illegal offshore market	Simulation studies in which the price elasticity of Internet gambling can be investigated and related behavioural, health en economic impacts	Agreement on international standards on tax and price regulations Players changing from legal regulated sites to unregulated sites with greater player incentives

Table 1 continued

Public health policies	Potential effectiveness	Recommendations for public health policy	Recommendations for research	Possible challenges
Brief interventions	+ / ++	Brief interventions should be available directly online for those at-risk for and experiencing gambling-related problems	Evaluating experiences with and the effectiveness of brief intervention policy measures in controlling online gambling behaviour	With very limited evidence available regarding the effectiveness of brief interventions for controlling internet gambling, measures can only be assumed based on land-based gambling experiences

Note The following ranking scale was used + evidence for limited effectiveness ++ evidence for moderate effectiveness +++ evidence for a high degree of effectiveness. The rankings of effectiveness are based on the literature reviewed in this paper, which is neither systematic nor comprehensive. As such, the rankings are provided as a guide for the potential of these policies to be effective in minimizing harm related to internet or land-based gambling

guide gambling policy development. However, more efforts are needed to create a cohesive framework of gambling harm-minimisation measures and enforce policies and frameworks where they exist.

The difficulty in regulating a virtual activity which can be regulated by an offshore jurisdiction and provided by foreign operators with servers and owners located around the world has caused great difficulty for international policy makers. However, despite the difficulties in regulating this activity, it is important that attempts be made and a cohesive and collaborative international approach may be the most useful way of implementing an effective public health policy. International Internet regulations and policies are not without precedent, for example, in 1997, the seven leading economic powers agreed to coordinate their national laws and law enforcement efforts to combat child pornography on the Internet and similar international coordination has been announced for the prevention of cyberterrorism (Mayer-Schonberger 2003). Similarly, EU-wide policies on Internet gambling and sports betting in particular have been discussed in an attempt to preserve integrity in sports (European Commission 2012). Such international cooperation can produce significant results, for example, Europol investigations recently revealed widespread fraud in 680 football matches around the world through working with international agencies (Europol 2013).

The call for minimal international standards for gambling policy is consistent with efforts already seen to introduce agreements between jurisdictions (European Committee for Standardization 2011; Gainsbury 2012). In Australia, although gambling has traditionally been regulated at a state-level, overarching federal regulations are applied to interactive gambling and efforts are underway to develop a nationally consistent harm minimisation approach (Department of Broadband, Communications and the Digital Economy 2012). The benefits of aligning regulation between jurisdictions include the promotion of international consumer protection standards and sharing resources such as research on best practice and the development of effective responsible gambling resources. Importantly, harm minimisation policies should be implemented as enforceable regulations, as opposed to voluntary codes of conduct. This is important to convey the responsibility of both governments and industry to ensure consumers are adequately protected.

Further research is needed in the gambling field to develop a strong evidence base for the effectiveness of public health and harm-minimisation policies. In particular, research is needed to aid the development of harm minimisation strategies for Internet gambling, given that some of the policies with demonstrated effectiveness for land-based products may not be as applicable to online activities. In addition, research is also needed to consider the potential unintended negative consequences of harm-minimisation policies, as well as the feasibility and costs of their implementation. Additionally, for any public health policy to be implemented, some level of public support is typically necessary. Although empirically supported policies are desirable, unequivocal evidence of effectiveness has been recognised as an important, but not mandatory requirement in creating public health policies (Ogilvie et al. 2009). The presence of an evidence-based gambling policy, although important, is insufficient to minimise harms; policy needs to be implemented, assessed and refined (Anderson et al. 2009). Given the infancy of the field, the policy recommendations provided here are not intended to be an exhaustive or comprehensive list; rather, the intention is to provide a starting point and commence a dialogue that may eventuate in international consistency in standards of harm-minimisation.

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