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Monitoring the impact of the COVID-19 pandemic on problematic gambling and gaming: an international key informant survey

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ABSTRACT

This paper reports a qualitative survey of experts in problem gaming and/or problem gambling from 19 countries worldwide on the impact of the COVID-19 pandemic on problematic gaming and gambling. Twenty-seven problem gaming experts reported (i) no licensing changes, (ii) few existing or newly introduced policies or regulations, (iii) overall increases in gaming, (iv) adverse health-related outcomes, (v) media coverage of gaming and eSports, (vi) limited health service capacity for treatment and prevention, (vii) difficulty in connecting with patients, and (viii) adaptations including transition to telemedicine. Twenty-eight problem gambling experts reported (i) no changes in policies or regulation, (ii) increased activity of off-shore betting companies, and (iii) increases in online gambling, though (iv) decreased expenditure due to closure of land-based gambling venues, (v) adverse health-related outcomes, (vi) some financial benefits from savings, (vii) few and poorly accessible treatment facilities and (viii) transition to telemedicine. There is a need for: guidelines on the prevention and management of excessive gaming and gambling; studies examining the public health consequences of eSports viewing and participation and closure of land-based gambling venues on other forms of gambling; and longitudinal studies in a number of different areas described herein.

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Introduction

COVID-19 is a highly infectious and potentially fatal disease that is caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). The first cases of the disease were reported in December 2019 and, following rapid global transmission, the World Health Organization (WHO) declared the outbreak as a Public Health Emergency of International Concern on 30 January 2020, and a pandemic on 11 March 2020. As part of public health measures to mitigate the spread of COVID-19, governments around the world imposed a wide range of national restrictions and physical distancing measures. This included the closure of day-care facilities and educational institutions, country borders and non-essential businesses as well as restrictions on social gatherings and free movement, and implementation of stay-at-home policies. These measures have profound social, financial, occupational and health consequences, and particularly affect vulnerable groups such as those affected by or at risk of addictive behaviors (Douglas et al., 2020; Király et al., 2020; Marsden et al., 2020; Mellis et al., 2021). Research suggests that such conditions are exacerbated when there is an absence of positive reinforcers (e.g. social activities and interactions; Marsden et al., 2020).

The COVID-19 social restrictions and lockdowns have been associated with increased involvement with digital entertainment, such as online gaming (Euromonitor, 2020; Higuchi et al., 2020; King et al., 2020). High engagement in gaming is not necessarily problematic (Billieux et al., 2019) and gaming can be used as an adaptive coping strategy to combat loneliness, stress, boredom, frustration and depressed mood, particularly in situations and environments where there may be limited alternative activities (e.g. Blake & Sauemilch, 2021; Giardina et al., 2021). However, excessive gaming for extended periods of time can become a problem for a significant minority of individuals, including vulnerable groups such as children and adolescents. The negative consequences of excessive gaming include sleep problems, poor diet, poor academic or job performance, physical health problems, and family conflicts (Reed et al., 2022; Saunders et al., 2017). Extended periods of social restrictions and lockdowns may establish unhealthy patterns of gaming and, logistically, present barriers to treatment (King et al., 2022, 2020).

With regard to gambling, many land-based gambling venues closed and most sporting events around the world were canceled, raising concerns about potential migration to easily accessible online gambling platforms (Håkansson et al., 2020a). Financial problems leading to financial stress (e.g. recent unemployment, reduced working hours, and job insecurity can adversely impact household income and result in failure to pay bills, mortgages and loans) are particularly exacerbated during times of crisis (Economou et al., 2019; Jiménez-Murcia et al., 2014; Olason et al., 2015) and have been found to be associated with a range of mental health problems, including gambling initiation and increases in problem gambling (Marsden et al., 2020; Price, 2022). Research from Sweden and Denmark suggested little overall change in gambling behaviors during the pandemic (Håkansson, 2020b, 2021). However, those who reported an increase in their gambling habits spent more time at home, had high levels of mental distress and gambling severity, and increased alcohol consumption suggesting that they are a vulnerable group . Those who migrated to online gambling evidenced higher levels of problem gambling and lower income compared to those who had never gambled online (Xuereb et al., 2021).

Recent years have witnessed increasing convergence between gambling and gaming products, platforms, and networks (Gainsbury et al., 2015; King & Delfabbro, 2020; Macey & Hamari, 2019; Molde et al., 2019). For example, gambling activities increasingly include gaming features that involve skill, social engagement, attainments, and tournaments. At the same time, games integrate gambling-like components and themes, such as randomly determined outcomes and rewards, and increased monetization of in-game items (Gainsbury, 2019; King et al., 2019). Indeed, given the similarities in symptomatology, epidemiology and neurobiology between problematic gaming and gambling, gaming disorder and gambling disorder were categorized as disorders due to addictive behaviors in ICD-11 when it was released in 2019 (Billieux et al., 2021; Reed et al., 2022); no other disorders are included in this category (Brand et al., 2022). Thus, the close relationship between gaming and gambling warrants simultaneous investigation herein.

Scholarly papers examining the impact of the pandemic continue to emerge, including some international studies reporting the perceived impact of the pandemic on alcohol and drugs (Farhoudian et al., 2020; Radfar et al., 2020; WHO, 2020). Surveys and commentaries on the impact of the pandemic of gaming, gambling and addictive behaviors in general have been published (e.g. Brodeur et al., 2021; Hodgins & Stevens, 2021; Lugo et al., 2021; Masaeli & Farhadi, 2021; Xu et al., 2021). These studies have used a variety of different methodologies. The present study aimed to investigatethe impact of COVID-19 on problematic gaming and gambling in both a wide range of countries and in relation to a wide range of issues. Specifically, the current study sought to examine the impact of COVID-19 on problematic gaming and gambling in terms of changes to: policies and regulations (licensing, marketing and sales); prevention, treatment and care of these disorders; consumption; media coverage; health-related outcomes; and, marketing and corporate social responsibility activities. The findings hold promise of making important contributions to public health monitoring activities and health service responses.

Materials and method

Sample

Data were collected from a wider online study examining the impact of the first COVID-19 pandemic lockdown on alcohol, drugs, and problematic gaming and gambling based on expert opinions. The study was developed in partnership with the Alcohol, Drugs and Addictive Behaviors Unit at WHO Headquarters, Geneva (see Acknowledgments) as part of a shared commitment to undertake public health monitoring and surveillance activities in substance use and addictive behaviors. Data collection ran from 11 May to 2 June 2020, with results referring to the initial stages of the pandemic.

Experts were professionals with research and/or clinical experience in substance use or addictive behaviors. They were identified and selected based on a number of potential criteria: (1) authorship of peer-reviewed papers on alcohol, drugs, problematic gaming or gambling; (2) experience assessing and treating patients with substance use and/or addictive behaviors; (3) membership of relevant editorial boards (e.g. *Addiction, Journal of Behavioral Addictions*); (4) membership of the ICD-11 Working Group on the Classification of Substance-Related and Addictive Disorders; and (5) participation in

WHO expert meetings, including the Public Health Implications of Addictive Behaviors and meetings on the Public Health Implications of Gambling and Gambling Disorder. Efforts were made to identify experts from a wide range of countries and from all six WHO Regions.

In total, 115 experts were identified and contacted. Personalized e-mail invitations were sent to all 115 experts, including a description of the purpose of the study (i.e. to gather information on issues relating to alcohol, drugs, and problematic gaming and gambling during the COVID-19 outbreak to inform public health monitoring and surveillance activities) and a link to the online qualitative survey, which was hosted on the online DataForm platform. With the exception of Iran (Islamic Republic of) and Italy, at least two experts were approached in each country for each of the four modules (alcohol, drugs, problematic gaming and gambling). Some experts circulated the survey to colleagues who were not on the initial invitation list and submitted responses. The credentials of these colleagues were checked to ensure they aligned with the above-mentioned criteria. In addition to the 115 experts initially contacted to participate in the study, nine additional responses were submitted from colleagues (N = 124). In the gaming and gambling modules, only one expert was recruited by the latter snowballing recruitment method.

Duplicate submissions were removed and submissions with incomplete identification information (e.g. missing name) were removed.

Responses were received from 68 experts (55%). Of these 68 experts, 50 experts completed the module for alcohol, 34 completed the module for drugs, 27 completed the module for gaming and 28 completed the module for gambling. Since the experts could complete more than one module, reflecting their areas of expertise and convergence between different disorders (e.g. gaming and gambling), the response rates for each module are not mutually exclusive and the percentages do not add up to 100. The response rate for the gaming module was 22% and 23% for the gambling module.

Questionnaire

Each module consisted of the same 10 open-ended questions, which referred to trends at national and municipality levels, specifically in relation to the COVID-19 pandemic, and governmental and societal responses. As knowledgeable professionals in the area of addictive behaviors, the experts were invited to share their observations of the impact of the pandemic on problematic gaming and gambling. This included awareness of news reports and trends in their respective countries, as well as a reflection of issues reported in their clinics, though no specific informationabout the experts' patients were asked for or reported.

In the problematic gaming and gambling modules, experts were asked to identify: (1) changes in policies and regulations relating to licensing, marketing and sales for gaming or gambling; (2) challenges relating to gaming or gambling policies and regulations; (3) responsive measures (introduced or under development) to address the above-mentioned challenges in policies and regulations; (4) main challenges relating to prevention, treatment or care services for gaming/gambling-related health problems or gaming or gambling disorder; (5) responsive measures (introduced or under development) to address the above-mentioned challenges in prevention, treatment or care; (6)

issues that attracted attention from the media or other stakeholders; (7) changes in population-level online gaming or gambling patterns; (8) changes in health-related outcomes; (9) changes in marketing and corporate social responsibility activities by the industry to promote gaming/gambling. The final question asked experts to provide any additional information not covered in the previous nine questions.

This survey was envisaged to be part of a longitudinal survey and ongoing monitoring and surveillance activities. To facilitate comparisons over time it was important that the same questions were used. Therefore, while we did not necessarily expect that policy changes (question 1 described above) would be reported in this wave of data collection, which occurred one month after the declaration of the global pandemic, the question was included for the purposes of a baseline assessment for future comparisons.

We did not ask experts about the source of their information as to do so would have increased respondent burden and negatively impacted response rates. Given that the study was conducted during the first wave of the pandemic, a time of increased workloads and stress, we focused on striking a balance between designing a questionnaire which covered a range of topics related to the pandemic, and addictive behaviors and parsimony. Experts not only included clinicians but also researchers with interests in various aspects of addictive behaviors and a range of scopes of expertise. If the experts did not have knowledge about changes in a particular area, they simply left that question blank.

Basic demographic information was collected (gender, country of residence, title, affiliation). Country income level of the experts was identified according to the most recent World Bank classifications with three categories: low-middle income country (LMIC), upper-middle-income country (UMIC) and high-income country (HIC).

Analytic plan

The data were exported from Dataform to Microsoft Excel and analysis was conducted independently by two of the authors. These authors (NC and JL) have substantial research and/or clinical experience in the areas of addictive behaviors as well as qualitative analyses.

First, the two analysts carried out independent readings of the data to increase familiarity. Consequently, manifest content analysis was used to describe the primary elements of the text (Graneheim et al., 2017; Graneheim & Lundman, 2004). This involved coding the text with a phrase to summarize a key attribute. The process involved minimal interpretation by the analysts and led to the development of categories rather than themes since categories more closely represent the manifest content analysis approach (Graneheim & Lundman, 2004). Interpretation remained close to the original text and generally corresponded to the order of questions in the survey. Vote counting was used to identify the prevalence of each category (Guest et al., 2012).

NC analyzed the problematic gambling module and JL analyzed the problematic gaming module. To cross-check and validate responses, NC reviewed a random 20% of responses in the problematic gaming module and JL reviewed a random 20% of responses in the problematic gambling module. There were no disagreements in conclusions. The final results and conclusions were shared with a subset of participants to further confirm accuracy and minimize researcher bias.

Tables S1–S2 in the Supplementary Online Material present a summary of illustrative quotations for each key attribute identified (as described above). The results are further sub-divided according to World Bank classifications and country in order to permit comparisons of experiences. While every effort was made to present quotes from all World Bank classifications, this was not always possible because some responses were blank or more closely related to another question.

Ethical approval

This survey was part of ongoing monitoring and surveillance activities, based on data already available in the public domain, did not contain sensitive personal or medical information, and was considered as negligible risk research. Retrospective waivers for ethical approval were granted by two independent ethics review bodies at the National Hospital Organization Kurihama Medical and Addiction Center in Japan and the University of Lübeck in Germany.

Results

Twenty-seven participants (male = 21; 75%) from 18 unique countries completed the problematic gaming module. This included experts from 11 HICs (61.1%), 4 UMICs

Table 1. Experts who participated in the COVID-19 survey investigating the impact of the pandemic on gaming and gambling.

	Countries	N of experts who completed the gambling module(Male: Female)	N of experts who completed the gaming module(Male: Female)	World Bank classification of economies [a]	Lockdown: Date of first COVID-19 lockdown
1	Australia	4(3 males: 1 female)	3(3 males)	HIC	March 2022
2	Belgium	-	1(1 male)	HIC	March 2020
3	Brazil	2(1 male: 1 female)	3(2 males: 1 female)	UMIC	March 2020
4	Canada	1(1 male)	1(1 male)	HIC	March 2020
5	China	2(1 male: 1 female)	2(1 male: 1 female)	UMIC	January 2020
6	Finland	1(1 female)	-	HIC	March 2020
7	France	3(1 male: 2 females)	3(1 male: 2 females)	HIC	March 2020
8	Germany	2(2 males)	2(2 males)	HIC	March 2020
9	India	1(1 male)	1(1 male)	LMIC	March 2020
10	Italy	1(1 male)	1(1 male)	HIC	March 2020
11	Japan	2(2 males)	2(2 males)	HIC	State of emergency declared in some prefectures in April 2020
12	New Zealand	1(1 female)	1(1 female)	HIC	March 2020
13	Philippines	1(1 male)	1(1 male)	LMIC	March 2020
14	Spain	1(1 male)	1(1 male)	HIC	March 2020
15	Sri Lanka	1(1 male)	1(1 male)	LMIC	March 2020
16	Switzerland	1(1 male)	1(1 male)	HIC	March 2020
17	Thailand	1(1 female)	1(1 female)	UMIC	March 2020
18	Turkey	1(1 female)	1(1 female)	UMIC	April 2020
19	UK	2(1 female, 1 male)	1(1 female, 1 male)	HIC	March 2020
	TOTAL	28	27		

[a] LMIC = lower-middle-income country, UMIC = upper-middle-income HIC = high-income country (based on the 2019 World Bank classifications). Reflecting increasing convergence between gaming and gambling, most experts completed the gaming and gambling modules for their country, with the exception of Australia, Belgium, Brazil, Finland and the UK, where some experts did not complete both modules.

(22.2%) and 3 LMICs (16.7%) (see Table 1). Twenty-eight participants (male = 19; 65.5%) completed the problematic gambling module. This included experts from 18 countries, which included 11 HICs (61.1%), 4 UMICs (22.2%) and 3 LMICs (16.7%) (see Table 1). The average number of research/clinical experience in addictive behaviors was 21.8 years (SD = 20.18) (five experts did not provide data on this question).

Gaming

The results for gaming are presented in Table S1 of the Supplementary Online Material.

Gaming policies, regulations and licenses

With the exception of Japan, experts from HIC, UMIC and LMIC reported that no policies and regulations had been developed, especially for gaming, during the first wave of the pandemic (e.g. limiting accessibility of games to young people during the night). Furthermore, no changes in retail or online gaming licenses in response to COVID-19 were reported in any of the surveyed countries. Of relevance, in many countries, online gaming was not perceived to be a major issue of concern (HIC: Australia, Belgium, Italy, New Zealand; UMIC: Brazil).

Changes in gaming health-related outcomes

In several HIC and LMIC, data were not yet available on changes in health-related outcomes related to gaming during the COVID-19 outbreak, or no changes were observed (HIC: Australia, Belgium, Germany, Spain, UK; LMIC: Philippines, Turkey). In cases where changes were observed, the most commonly reported change across HIC, UMIC and LMIC (Canada, France, Japan, Switzerland, Brazil, India) was sleep problems (e.g. day-night reversal, reversal of circadian rhythm, reduced sleep). Additional changes observed included: dietary and weight problems (HIC: Japan, Switzerland, LMIC: India); unhealthy lifestyle patterns, including a sedentary lifestyle and reduced personal hygiene (HIC: Switzerland, UMIC: China); conflict with family members (HIC: Switzerland, UMIC: China); and, comorbidity (HIC: Switzerland, UMIC: Brazil).

Gaming advertising and marketing, corporate social responsibility (CSR) activities

Increased marketing was observed in some countries (HIC: Australia, Switzerland), including increased promotion of eSports (HIC: Canada, UMIC: Turkey). Some experts observed that gaming was promoted through the industry's '#PlayApartTogether' campaign, which incorporated WHO messages about reducing the spread of COVID-19 (HIC: Australia, Switzerland). Experts from several other countries reported no changes in advertising, marketing or CSR activities (HIC: France, Germany, Japan, New Zealand, Spain, UK, UMIC: Brazil, China, LMIC: India, Sri Lanka, Philippines).

Gaming media coverage

The gaming industry's '#PlayApartTogether' campaign received media coverage in many countries. Other issues attracting media attention included the legality of offshore gaming operators (LMIC: Philippines) and increases in gaming, and resultant risk of developing gaming disorder and related problems among young people (HIC: Australia,

Canada, France, Japan, UMIC: China, LMIC: India). Other experts reported that gaming did not receive media coverage in their country (HIC: Germany, Italy).

Increases in gaming sales and participation

Increases were reported in the sale of games and consoles, in-app purchases, time spent playing online games and viewership of online gaming channels (HIC: Australia, France, Japan, Switzerland, UMIC: Brazil, China, LMIC: India). It was speculated that the increase in hardware sales reflected new interest in gaming (HIC: Australia), and increased availability and popularity of games from the 1980s and 1990s were designed to attract older players (UMIC: Brazil). An increase in online gaming was thought to have occurred in all population groups, but especially in at-risk populations such as children and adolescents who were not attending school due to COVID-19 imposed closures (HIC: France, Switzerland).

Service capacity and difficulties connecting with patients

Services obviously differ from country to country. However, a common challenge reported for prevention, treatment and care services related to gaming disorder and gaming-related health problems was limited prevention and service provisions in the public sector for gaming problems (HIC: Australia, Canada, France, Switzerland; UMIC: Brazil; LMIC: India). In many countries, it was difficult to connect with patients due to shutdowns and stay-at-home mandates (HIC: Germany, Japan, Spain, Switzerland, UMIC: Turkey). Even when treatment services were available, individuals in need were unwilling to present for treatment due to fear of contracting COVID-19 (HIC: Japan). Face-to-face inpatient and outpatient services were canceled, postponed or scaled back (HIC: Australia, France, German, Italy, Japan, Switzerland, UMIC: Turkey, LMIC: India), presenting complications and treatment barriers to individuals with or at risk of developing gaming-related problems and their families. In some countries treatment demand was high (HIC: Japan, Switzerland) and low in others (HIC: France, LMIC: India).

Telemedicine

As a result of stay-at-home mandates, there was a move to telemedicine during the initial three months of the first lockdown, including skill-based training webinars for counselors and parents, phone/video counseling and support to patients and family members, and provision of information online (HIC: Australia, Canada, France, Italy, New Zealand, Switzerland, LMIC: India). In contrast, in other countries, no data are available on the management of gaming related problems (UMIC: Brazil). In some cases telemedicine services provided by psychologists were available at a more affordable price compared to prices before the pandemic (HIC: Australia), guidelines were developed for parents and teachers about managing gaming and other digital media use among young people (HIC: Australia), and some clinicians still offered face-to-face services but with precautions (i.e. masks and physical distancing) (HIC: Switzerland).

Gambling

Gambling polices and regulations relating to licenses, advertising/marketing and sales

Regardless of the legal status of gambling (legalized [e.g. UK], not legalized [e.g. Brazil], government monopoly [e.g. Finland]), no changes relating to licenses, advertising/marketing were reported during the COVID-19 pandemic (HIC: Australia, Canada, France, Germany, Japan, Finland, UK, UMIC: Brazil, China, Turkey, LMIC: India).

Challenges to gambling policies and regulations

Experts identified a number of challenges relating to gambling policies and regulations, including: use of and regulation of offshore online gambling websites (HIC: Canada, Finland, France, Germany, Switzerland); managing the increase and related public health implications of online gambling with the closure of land-based gambling venues (HIC: France); limited information and prevention resources, including little societal awareness of gambling-related problems and a dearth of epidemiological evidence (HIC: France, UMIC: Brazil); the decrease in funding for community initiatives linked with electronic gaming machines (EGMs) (HIC: New Zealand); flaws in the self-regulatory approach (HIC: UK); and implementation of recommendations to close land-based gambling venues (HIC: Japan).

Responses to gambling challenges

In relation to the above-mentioned challenges, some experts reported that no responsive measures were introduced or were under development (UMIC: Brazil, LMIC: Philippines). Others reported that some measures were introduced or proposed, including: universal loss limits (HIC: Australia, Finland); blocking of online providers, user registration, precommitment systems, and reduced venue opening hours (HIC: Australia); increased messaging addressing online gambling (HIC: Canada); government rebuke of venues who did not follow closure recommendations (HIC: Japan); lowered cap for interest, ban on direct marketing of consumer credits and quick loans (HIC: Finland); allocation of budget and personnel resources to address problem gambling (HIC: UK, Japan); and, public service announcements to avoid heavy gambling (HIC: Canada).

Gambling sales, closure of land-based gambling venues and online gambling

In countries where gambling is prohibited, no information was available on illicit gambling sales (UMIC: Brazil). In many countries, land-based gambling venues were closed and sports events were canceled (HIC: Australia, Finland, France, Germany, Italy, Japan). Other forms of gambling, such as cockfighting, were banned during lockdown, though some instances of violations were reported (LMIC: Philippines). As a result of the closure of land-based gambling venues, gambling sales were thought to have decreased considerably (HIC: Australia, Finland, France, Japan), though evidence was mixed in some countries (HIC: UK). Additionally, the closure of land-based gambling venues led to increases in online gambling (e.g. lotteries, poker), including use of illegal and unregulated offshore gambling websites (HIC: Australia, France, Germany, Italy, Japan, Switzerland; LMIC: Philippines). Whilst there were some fears of a substitution effect to more fast-paced gambling formats (HIC: Finland), and an increase in the number of

regular gamblers (HIC: UK), the increase in online gambling did not come close to offsetting the substantial losses from EGMs (HIC: Australia).

Gambling advertising/marketing and corporate social responsibility activities

Mixed trends were observed in terms of gambling advertising/marketing and corporate social responsibility activities. Some countries reported increases in online marketing (HIC: Finland, Germany, Japan, Switzerland), in other countries it remained unchanged (HIC: France, UMIC: China, LMIC: Philippines), and still in other countries there were conflicting reports about whether marketing had increased or was scaled back (HIC: Australia).

Cessation of face-to-face appointments, treatment demand and telemedicine

Generally, face-to-face appointments and group meetings related to gambling prevention, treatment and care services ceased during lockdown, presenting a challenge for accessing patients (HIC: Switzerland). As a result, remote-based services were widely introduced, including increased and tailored messaging to address online gambling and provision of resources for those affected by gambling disorder (HIC: Australia, Canada, Finland, Germany, Switzerland, LMIC: India). There were mixed reports on whether treatment demand had increased (HIC: Canada, Switzerland) or decreased (HIC: Finland, France, UK).

Gambling media coverage

Common issues attracting media attention included the potential transition to and increase in online gambling, as well as the risk of increased expenditure in the context of COVID-19 (HIC: Australia, France, Italy, Japan). Also, in some countries, the media cautioned about the risks of engaging in gambling and substances during lockdown (HIC: Canada, UK). Other issues attracting media attention were varied and included: concerns about the ease of gambling accessibility (HIC: Australia); gambling problems in young people (UMIC: Brazil); the economic implications associated with the closure of land-based gambling venues (HIC: Canada); domestic challenges with finances (HIC: Finland); changes in gambling infrastructure, including marketing of consumer credits and a ban on instant loans (HIC: Finland); the inadequacy of industry responses (HIC: UK); reminders that support is available to those experiencing gambling-related problems (HIC: Finland). There was pressure to legalize gambling in some countries where it is currently prohibited and no media coverage of black-market forms of gambling (UMIC: Brazil). Elsewhere, there was recognition that gambling profits act as a source of government revenue source and can support culture and aiding recover from COVID-19, though gambling appears to attract less media coverage than gaming in some countries (HIC: Switzerland).

Resource barriers

A number of common barriers to gambling prevention, treatment and care services were identified, including the closure of treatment services, training, trade fairs and other venues which hampered access to resources, health professionals and impacted continuity of care (HIC: Australia, Finland, France, Germany; UMIC: Brazil). Also, in several countries there was a lack of resources, including treatment and management guidelines,

and systematic national prevention for gambling (HIC: France, Switzerland, UK, UMIC: Brazil, China, India, LMIC: Philippines). Unique barriers identified: disruption to gambling-related research projects (HIC: UK) and lack of availability of specialized treatment facilities and treatment of gambling problems in mental health settings and stigma surrounding help-seeking (UMIC: India).

Changes in gambling health-related outcomes

In some countries, the closure of land-based gambling venues was speculated to be associated with improved mental health for some gamblers (HIC: Australia, Finland). In other countries, the COVID-19 pandemic was suggested to have led to increased comorbid health conditions, including depression (HIC: Switzerland), partner or family conflict (HIC: Switzerland, UMIC: China) and citizens who lost their jobs and had gambling debts were particularly vulnerable (HIC: Finland, Japan). Still in other countries, it appeared too early to evaluate changes in gambling health-related outcomes (HIC: France, Germany) and studies were underway to formally assess the impact of COVID-19 on gambling (HIC: Australia, Canada).

Discussion

The COVID-19 pandemic has had far-reaching negative consequences on our daily lives, both from the illness itself and the necessary public health infection control measures taken. It has also exerted significant impacts on population- and individual-level health. These complex health challenges have shown that many in the population are vulnerable, to some degree, to experiencing stress, depression, loneliness, frustration, and anxiety about the future and disease (Schimmenti et al., 2020). These factors increase the risk of developing unhealthy behaviors such as substance use and addictive behaviors (Király et al., 2020; Marsden et al., 2020). This paper reports the results of an international, qualitative survey of expert views on the impact of COVID-19 on problematic gambling and gaming behaviors. The study was conducted during the first wave (May-June 2020) of the pandemic. As Brodeur et al. (2021) observed, the peer-reviewed literature on the impact of the pandemic on gambling is still limited and qualitative studies are needed to better understand the impacts.

The main findings for the gaming module are summarized as follows: (1) most countries do not have policies and regulations relating to gaming and no changes to retail or online gaming licenses occurred in response to the COVID-19 outbreak; (2) some experts reported changes in gaming health-related outcomes (e.g. sleep problems, weight gain, unhealthy lifestyle patterns and family conflict) while others indicated data were not available; (3) many experts reported increased industry marketing (e.g. increased indirect and direct eSports promotion, and the industry's '#PlayApartTogether' campaign), while others reported no changes in advertising, marketing or CSR activities; (4) gaming was featured in the media in some countries (e.g. legality of offshore gaming operators, possible increases in gaming disorder and related problems among young people) but not in others; (5) some experts reported significant increases in the sale of games and consoles, in-app purchases, time spent playing online games, viewership of online gaming channels, and availability of free online gaming platforms. These trends were linked to stay-at-home mandates imposed by the

authorities. Other experts did not have access to relevant data; (6) several challenges were reported, including limited service capacity, limited prevention and service provision in the public sector for gaming problems, difficulty accessing patients, those at risk of developing gaming-related problems and their families; and (7) many experts reported that no measures were introduced or under development to address the above-mentioned challenges as online gaming is not perceived to be a major issue in many countries and there are no systematic prevention measures or monitoring systems. Others reported a move to telemedicine, availability of face-to-face services with precautions and provision of guidelines about managing gaming and other digital media use among young people.

The main findings for the gambling module are summarized as follows. Experts reported: (1) no changes relating to policies/regulations relating to licenses, advertising/marketing and sales; (2) several gambling policy and regulation challenges (e.g. offshore companies, no national systematic preventive initiatives); (3) responses to these challenges (e.g. blocking of online providers; (4) no information on illicit gambling sales in countries where gambling is prohibited, and decreased gambling sales due to lockdown restrictions in countries where gambling is legal; (5) land-based gambling expenditure decreased due to the closure of venues, and some increases in online gambling (including illegal, unregulated offshore gambling websites) were observed, but the substitution effect was not large enough to offset the substantial losses from EGMs; (6) mixed evidence on advertising, with some increases in television and online advertising as well as marketing of consumer credits and instant loans in some countries, and scaling back of industry activities in other countries; (7) face-to-face appointments and group meetings stopped during lockdown. As a result, remote-based services were widely introduced with mixed evidence on treatment demand; (8) gambling coverage in the media (e.g. increases in online gambling and potential risk of gambling-related harms); (9) resource barriers to gambling prevention, treatment and care services (e.g. few treatment facilities); and (10) adverse (e.g. comorbidity, relapse) and positive (e.g. additional funds) gambling health-related outcomes.

In the wider literature, concerns have been voiced among treatment providers, policymakers, scholars and regulators that gambling involvement and rates of gambling disorder would increase due to stay-at-home mandates, access to treatment would be compromised and the need for increased awareness about problem gambling among the general public and health professionals (see, Brodeur et al., 2021). A transition to online gambling would have important public health implications as the online environment itself can promote increased risk-taking and reduced inhibitions (Suler, 2004), and online casino games (slot machines, blackjack, roulette etc.) are associated with a higher potential of gambling-related harm based on their structural characteristics (e.g. faster pace of speed, higher influence of luck, repetition, anonymity) and higher prevalence of gambling disorder (Chóliz, 2016; Håkansson et al., 2020a; Harris & Griffiths, 2018; Keller & Sim, 2021). Relatedly, some groups in the population (e.g. young people) have a greater risk of harmful gambling. Gambling among youths is particularly concerning due to rapid advances in technology, increased internet speed and availability, increased accessibility of gambling on smartphones, and convergence between online gaming and gambling. Indeed, the media reported increases in online gambling during the first

wave of the pandemic in some countries (e.g. Canada [Blaschke, 2020]; UK [Snook, 2020]).

The current study was conducted during the first lockdown when land-based venues in many countries were closed. Herein, gambling sales were, unsurprisingly, reported to have decreased with some movement to online gambling. This is consistent with a review by Hodgins and Stevens (2021), though the design of the current study precludes insights into the extent of the change or whether changes occurred amongst those with high-intensity, likely problematic gambling behavior. Elsewhere in the literature, Auer and Griffiths (2022) found that gambling intensity (i.e. the amount of money wagered) of Swedish online casino players significantly decreased at the beginning of the pandemic, whereas low intensity players' spending increased. Decreases in overall gambling were reported by Masaeli and Farhadi (2021), Lugo et al. (2021), and in reviews by Brodeur et al. (2021) and Hodgins and Stevens (2021). As the pandemic continues to evolve, further surveillance is required to examine trends in online gambling involvement.

In this paper, increases in the use of illegal, unregulated offshore gambling websites were reported. Unregulated, offshore gambling websites raise concerns due to the potential absence of protective measures such as time and expenditure limits, age verification, and security and privacy features. Thus, as the pandemic evolves and if rates of online gambling increase markedly, national reviews of existing gambling regulations and policies may be warranted. While no changes to gambling policies were reported in the countries surveyed in this paper, changes have been observed in other countries such as Belgium, Latvia, and Sweden (Brodeur et al., 2021).

The first wave of the pandemic spanned January-July 2020; this study was conducted from May-June 2020, at a time when social distancing and travel restrictions were imposed around the world, together with stay-at-home mandates, and the closure of non-essential bricks-and-mortar retail outlets. Reflecting the findings of this study, market research indicates that, globally, eSports, video streaming and video games widely increased and emerged as means of maintaining connections with friends and emotional well-being, as well as passing the time (Euromonitor, 2020). Indeed, sales data indicate that in 2020 video games in Western Europe indexed their most significant growth period in more than a decade, and recorded the third highest sales and per capita consumption level, with double-digit growth across most of the region. Most of this trend was driven by the UK, which maintained its position as the largest video gaming market (Euromonitor, 2021). In-game purchases, video streaming, and eSports all increased in the region, and patterns of use changed from evening peak times to a more even spread throughout the day during lockdown (Euromonitor, 2021). Asian markets displayed similar trends to other regions of the world, except for Japan where demand for video games declined (Euromonitor, 2020). Widespread increases in online gaming and eSports have been observed in the peer-reviewed literature as a means of maintaining connections with friends and emotional well-being, and passing the time during lockdown (Amin et al., 2020; Keller & Sim, 2021; Masaeli & Farhadi, 2021). Indeed, a key finding of this study and the wider literature is the differential impact that the pandemic had on gaming and gambling behavior: widespread increases in engagement in online gaming and expenditure were observed, whereas the growth of online gambling was more modest.

The majority of the countries (n = 16) analyzed in this paper experienced the first COVID-19 lockdown in March 2020, with three exceptions: China started imposing local lockdowns in January 2020, and Turkey and Japan declared a lockdown/state of emergency in April 2020. As the pandemic progressed, the timing and extent of COVID-19 lockdowns varied between countries, presenting challenges to researchers interested in comparing trends over time. The benefit of analyzing the first wave is that the timing of lockdown between countries was similar and measures were typically restrictive. The first wave of the pandemic thus offers a more homogeneous sample than later waves, as all countries faced unprecedented challenges and had limited knowledge about the nature of and optimal responses to this public health emergency.

Increased online activity can potentially place those in recovery or at risk of developing a gambling or gaming disorder at particular risk. During the COVID-19 pandemic, governments and national and international public health bodies stated that actions must be taken to protect the most vulnerable. Video gaming and eSports are most popular among young people, including adolescents (King & Potenza, 2019) who turned to these activities to help cope with social isolation and loss of routines, and are a particularly vulnerable group. Adolescence is a developmental period marked by significant neurobiological, behavioral and social changes, and a time when mental health disorders, substance use disorders, psychosis, personality disorders, eating disorders and disorders due to addictive behaviors first emerge. The above findings underscore the need to include gaming disorder, and recognition of the harms associated with excessive gaming, on public health agendas. Supportive governments and local authorities are essential for raising funds to support prevention, treatment and care initiatives, and the development and implementation of evidence-based policies, regulations and programmes. It is clear that there is a dearth of guidance on the management of problem gaming and gaming disorder, limited prevention resources and no monitoring or surveillance system to facilitate systematic, ongoing data collection, analysis and dissemination.

eSports, sometimes referred to as 'competitive gaming' or 'pro gaming', is a rapidly growing multi-million-dollar industry that includes large tournaments, attractive prize money for winners and large audiences via livestream or stadiums (Sweeney et al., 2021). The inclusion of eSports in The Olympic Virtual Series prior to the 2021 Tokyo Olympic Games, in the Asian Games 2022 in Hangzhou and as a medal event at the 2021 Southeast Asian Games in Vietnam reflects the increasing popularity and growing acceptance of eSports as a legitimate sport. Due to increasing public health concerns about the harms associated with excessive video gaming and reports of increases in eSports promotion, further research is urgently needed to explore the public health consequences of eSports viewing and participation.

The gaming industry's '#PlayApartTogether' campaign was a promotional campaign that involved special events and rewards to encourage people to play video games at home as part of physical distancing measures to halt the spread of the virus (Balhara & Chandiok, 2020). However, the media and some scholars misinterpreted the campaign as a partnership with WHO. WHO did not formally or informally engage with the gaming industry during the COVID-19 pandemic but rather released physical distancing and hygiene advice, and encouraged individuals and organizations to follow the advice in order to halt the spread of the virus (Dr Vladimir Poznyak, personal communication, 3 July 2020).

Future research

It is important to monitor changes in gambling policy and regulation landscapes as a result of the pandemic and the associated public health implications. For example, in countries where gambling is illegal (e.g. Thailand), there has been increased pressure and government willingness to legalize gambling, in part to control the number of COVID-19 infections resulting from illegal gambling venues, which have a high risk of COVID-19 transmission (Parpart, 2021). Furthermore, future research should consider the longer-term effects of the closure of land-based gambling venues on other forms of gambling.

Although consensus guidance on preventing problematic internet use has recently been published (Király et al., 2020), empirical data on effective preventive measures and management guidelines is missing (King et al., 2018; Rumpf et al., 2018). In addition, the pandemic has increased the need to develop access pathways to individuals at risk for gaming disorder or gambling disorder. For this purpose, risky behavior needs to be detected within online applications, which could be provided by tracking of behavior patterns, although ethical issues need to be considered (Montag et al., 2020). Collaborations between the gaming/gambling industries and academia through sharing data holds promise for developing interventions that could reduce harm (King et al., 2021). Moreover, it would be helpful if the gambling and gaming industries would increase efforts to diminish harm, facilitate help-seeking by providing corresponding technical solutions and recognize the evidence on problem gaming and gaming disorder (King & Gaming Industry Response Consortium, 2018).

Future studies should examine the public health consequences of eSports viewing and participation, and the closure of land-based gambling venues on other forms of gambling. Additionally, while the number of longitudinal studies is expanding (see reviews by Burleigh et al., 2019; Paulus et al., 2018; Richard et al., 2020), there is a specific need for longitudinal studies which assess: changes between gaming disorder and comorbid addictive disorders over time, temporal sequencing and pathways to gaming disorder (Burleigh et al., 2019; Paulus et al., 2018; Rumpf et al., 2019), the course of gaming disorder across the lifespan from a developmentally informed perspective (e.g. presentation of gaming disorder in adulthood compared to childhood and adolescence), the role of cognitive factors in predicting and maintaining gaming disorder, and neurobiological changes amongst individuals with gaming disorder (Richard et al., 2020). From a methodological perspective, there have also been calls to develop longitudinal study designs which control for baseline scores, have follow-up periods over five years, examine variables associated with gaming disorder that have only previously been considered within a cross-sectional context to date (e.g. sensation seeking, introversion, boredom), and investigate distal predictors (e.g. underlying traits; Richard et al., 2020). Finally, there is also a need for longitudinal studies assessing changes and patterns in gaming and gambling as a result of COVID-19 public health measures, including quarantine and social restrictions, particularly in low-income countries.

School closures, social distancing and stay-at-home mandates resulted in adverse outcomes such as learning gaps, reduced physical activity, increased depression and anxiety, and increased screen time (Larsen et al., 2022). As observed by Larsen et al. (2022) and reported in the current study, the pandemic also resulted in major changes to

family routines with families spending increased amounts of time together and previous routines restricted, resulting in increased family tensions and interparental conflicts. These conditions may have been particularly challenging to adolescents which is a period characterized by increased independence. Future avenues of research should explore children and adolescent's positive reactions (which has had a disproportionate emphasis to date) as well as negative reactions to the pandemic in the context of pre- and post-pandemic family functioning.

Strengths and limitations

This paper has a number of important strengths. First, this paper contributes to a dearth of international studies documenting the impact of COVID-19 on problematic gaming and gambling. Second, the survey was not anonymous, which may have increased accountability and led to more considered responses. Third, the findings were circulated to a subset of participants to allow confirmation of accuracy and minimize researcher bias.

The present study also has a number of limitations. First, the survey was only produced and distributed in English. Second and relatedly, responses were self-report and, in many cases, derived from a single focal point in each country. Accordingly, research bias cannot be ruled out. That being said, it was not possible to validate self-reported responses against published empirical data due to the rapid pace of the pandemic and limited availability of data. While every effort was made to contact experts with sufficient research and/or clinical expertise in the field of gambling and gaming disorders from as many countries as possible, regrettably we did not receive input from countries such as the United States or low-income countries. This should be addressed in future studies of this kind. Relatedly, for some countries, a greater number of experts submitted responses compared to other countries and, given that some countries have a larger gaming/gambling market than other countries, caution should be exercised when interpreting the results. Relatedly, caution should be exercised when comparing trends according to World Bank Classification due to the high proportion of HIC (n = 11), small numbers of UMIC (n = 4) and LMIC (n = 3), and absence of LIC. Furthermore, it should be remembered that there are marked differences between countries in terms of gaming and gambling; for example, some countries have a more developed gaming policy landscape (e.g. Japan) or a larger gambling market (e.g. Australia) than other countries. That all being said, it is challenging to conduct an alternative study design such as an epidemiological survey during a pandemic due to prioritization and distribution of funding to frontline activities (e.g. screening, staffing, infrastructure, personal protective equipment) and logistical constraints.

Third, the survey focused on national trends, and therefore regional variations (e.g. rural vs. urban) were not taken into account. Finally, the gaming and gambling modules of the survey were associated with a low response rate, which could reflect increased workloads of these professionals, involving task-shifting within the critical first months of the pandemic.

Closing note

The purpose of this survey was to provide rapid, preliminary insights on the impact of COVID-19 on addictive behaviors around the world in order to monitor trends in

different countries, and identify service gaps and emerging needs during the current pandemic and for similar, future emergencies. The rapid, ongoing development of COVID-19 – including the emergence of virus variants and varying severity of quarantine and social restrictions – underscores the need to continue monitoring activities on problematic gaming and gambling alongside other conditions and health priorities, as well as conducting longitudinal studies to assess changes and patterns over time.

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