Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Gambling at the time of COVID-19: Results from interviews in an Italian sample of gamblers

Ilaria Cataldo a,*, Eleonora Casonato a, Ermelinda Levari b, Attilio Negri c, Pierluigi Simonato c, d, Giulia Tomasi e, Giovanna Branz b, Aurora Coppola b, Pietro Gianfranceschi b, Eva Leoni b, Pietro Mistretta b, Martina Stefani h, Miriam Vanzetta c, Anna Franceschini b, Gianluca Esposito a, f, g, Ornella Corazza a, c

a Department of Psychology and Cognitive Science, University of Trento, Rovereto, Italy
b Local Public Health Authority, Addiction Treatment Unit (SERD), Trento, Italy
c School of Life and Medical Sciences, University of Hertfordshire, Hatfield, United Kingdom
d Clinic “Parco dei Tigli”, Padova, Teolo, Italy
e Self-help mutual aid association “AMA”, Trento, Italy
f Psychology Program, School of Social Sciences, Nanyang Technological University, Singapore, Singapore
g Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore, Singapore

A B S T R A C T

The coronavirus pandemic affected the life of those suffering from addictive behaviors often confined to prolonged periods of self-isolation. To explore the variation of symptoms related to gambling, 46 outpatients of the mental health services in the Trento Province were invited to take part in a phone interview at the start of the national lockdown. Although only 2.17% increased gambling activity during this period, half of the sample (50.00%) experienced irritability, mood fluctuation (43.48%) and anxiety (39.13%). Follow-up studies should assess modifications in their behaviors that occurred after the reopening of gambling venues.

1. Introduction

The outbreak of the COVID-19 pandemic significantly affected the lives of people all over the world. The first country to face such an emergency in Europe was Italy (Saglietto et al., 2020), where restrictive measures, such as social and physical distancing, were adopted to contain the spread of the virus starting from late March until May 2020. This sudden and prolonged period of in-home self-isolation (Smith et al., 2020, Alkhamees et al., 2020, Wang et al., 2020) had severe repercussions in people’s lives sometimes leading to the risks for aggravation of psychological health symptoms, especially among those diagnosed with a mental disorder. A corresponding shift was also plausible in patients with behavioral addictions since the accessibility to substances, or mechanisms, was drastically reduced or modified. Specifically, gambling has been affected not only by the closure of land-based venues (i.e., casinos, betting shops), but also by the suspension of sports events and other related social activities, in combination with the necessity to use the internet more often to communicate and work (Håkansson et al., 2020, Lischer et al., 2021). Hence, the only available place to gamble was on online with the temptation to do so being just a “click away”. Risky online gambling behaviors could have also been further facilitated by financial concerns (Orford, 2004), perceived isolation (King et al., 2010), feelings of boredom and loneliness (Mercer and Eastwood, 2010, Blaszczynski et al., 1990), and reduced social support (Holdsworth et al., 2015) affecting the overall psychological well-being and potentially aggravating pre-existing symptoms in pathological gamblers, such as mood and anxiety disorders (Dowling et al., 2015, Sharman et al., 2021). Initial data shows that most of the reported increase in gambling during the pandemic was referred to online gambling platforms (Håkansson, 2020). However, findings present some discrepancies: a recent investigation on US residents found that on-line gambling decreased during the first COVID-19 outbreak. Within those who were not involved with online

---

Abbreviations: AMA, Auto Mutuo Aiuto; APSS, Azienda Provinciale per i Servizi Sanitari; HAM-D, Hamilton Depressions Rating Scale; SERD, Servizio Dipendenze; VLT, Video Lottery Terminal.

* Corresponding author.
E-mail address: ilaria.cataldo@unitn.it (I. Cataldo).

https://doi.org/10.1016/j.etdah.2022.100032
Received 9 August 2021; Received in revised form 23 November 2021; Accepted 20 January 2022
Available online 1 February 2022
2667-1182/© 2022 The Author(s). Published by Elsevier Ltd on behalf of International Society for the Study of Emerging Drugs. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/)
gambling before the onset of the coronavirus pandemic, only a minority reported a migration from land-based gambling to the online equivalent (Xuereb et al., 2021). Other results highlighted that the total online gambling activity during the first phases of COVID-19 did not increase, requiring further research to investigate this subject more in detail (Lindner et al., 2020). While further assessment is required, consideration also needs to be given to psychological distress which can be associated with gambling activities (Gainsbury et al., 2019), and mental health worsening in more vulnerable individuals (Sharman et al., 2021), including gamblers. Comorbidities between gambling and other psychiatric disorders, in particular depression, anxiety, mood and personality disorders, have been proved to be common (Black and Moyer, 1998, Petry et al., 2005, Lorains et al., 2011), and in some cases, land-based gambling has been substituted with other forms of behavioral addiction, such as increased rates of alcohol consumption, tobacco, and other substances intake (Xuereb et al., 2021). Regarding the possible impact of these disorders on gambling behaviors, some studies have found a correlation between depression and gambling symptoms (Thomsen et al., 2009, Sharman et al., 2021), which might be explained through the shared genetic contribution (Potenza et al., 2005). Stress was also considered a possible reason to gamble as a coping strategy and as a result of the social, familiar, and financial difficulties that a gambler usually has to face (Buchanan et al., 2020). All these factors are even more prominent with the all-rounded pressure of COVID-19. Due to the complex nature of the problem, the conditions of gamblers in the Province of Trento, Italy, were explored during the first phase of national lockdown which occurred from March to late May 2020. Specifically, the investigation focused on both behavioral variations (i.e., increased gambling activity) and related mental health symptoms (i.e., depression, anxiety). The aim of the present study is to investigate possible behavioral variations (i.e., increased gambling activity) and related mental health symptoms (i.e., depression, anxiety) during the Italian national lockdown.

2. Methods

The Ethics Committee of the local Public Health Unit services approved the present study on April 28, 2020. The authors recruited all the outpatients diagnosed with pathological gambling according to the DSM-5 criteria (xxx, 2015) and in treatment at the Addiction Treatment Unit (SERD) of the local public health services in the Province of Trento, or attending mutual-help groups based in the same province (Associazione Auto Mutuo Aiuto, AMA), for a total of 77 potential participants. Inclusion criteria were: (i) minimum 18 years of age; (ii) being in charge as outpatient at the SERD or attending a therapeutic group at the AMA during the period of data collection. Exclusion criteria adopted were the patient’s refusal to take part in the interview and the unavailability of the phone number in the patients’ record. Informed consent was asked and obtained before the interview. Due to the restrictions imposed on face-to-face interactions, responses were provided remotely through a telephone call immediately after the first lockdown, between May and July 2020. The study involved 77 outpatients to meet the inclusion criteria, 47 of whom answered the phone call, but with 1 refusing the interview. Phone calls were made by professionals (3 physicians, 3 psychologists, 1 social assistant, and 1 mental health practitioner) who were familiar with the outpatients and with whom they had established a significant therapeutic relationship. All data were collected anonymously during a single telephonic session.

2.1. Materials

The investigation included targeted questions about the variations in behavioral symptoms related to gambling (i.e., craving, abstinence), the presence of other addictions, mental health issues (i.e., sleep disturbances, appetite, irritability), prescription of medicines and changes in drugs intake, and the perception of the gambling-related problem. To this purpose, two types of questions were adopted: dichotomous questions (yes/no), and categorical questions to investigate variations in gambling behaviors and related symptoms. The dichotomous questions covered several topics, such as the presence of a psychiatric diagnosis, a prescription of medicines, consumption of alcohol/other substances, and mental health issues; furthermore, questions inquiring about online gambling and gaming, job circumstances (i.e., smart working), variations in behavioral symptoms (i.e., craving and abstinence of other substances) and self-evaluation (i.e., awareness of their own gambling-related problem, feeling the need to seek help) were included in this category. The categorical questions investigated about socio-demographic information, changes in gambling activities and in drugs, alcohol and other substances intake, the typology of the psychiatric diagnosis, and of the pharmacological therapy if present, and typology of online gambling if indulged in), with the possible answers being ‘increased’, ‘unvaried’, and ‘decreased’. Lastly, to indicate the gambling severity participant could choose between ‘mild’, ‘moderate’ and ‘severe’. All unreported answers were labeled as ‘unknown’. The Hamilton Depression Rating Scale (HAMD, (Hamilton and Guy, 1976)) was used to assess depression further. HAMD is widely utilized for clinical and research purposes, and it consists of 17 items scored between 0 and 4 on a Likert scale. Scores between 0 and 7 suggest the absence of depression. The range 8–16 indicates the presence of mild depression, points from 17 to 23 imply moderate depression, and scores over 24 hint severe depression, with the maximum score being 52.

3. Results

RStudio Desktop 2021.09.0+351 was used to explore the database and compute analyses. One person refused to answer the interview. The final sample consisted of 46 outpatients of the Addiction Treatment Unit diagnosed with pathological gambling. Table 1 shows the socio-demographic characteristics of the sample in detail. The mean age of the sample was 52.62 years (SD = 15.69), and 84.78% were males (N = 39). Half of the participants were currently working at the time of the interview (N = 23, 50.00%), and 45.65% of the respondents were living with other people (Nspouse = 14, 30.43%; Nparens = 7, 15.22%), while the 36.96% was living alone (N = 17). Most of the sample reported the gambling problem to be severe (N = 29, 63.04%) or moderate (N = 13, 28.26%) (see Fig. 1) and expressed a preference for the Video Lottery Terminal (VLT) (N = 35, 76.09%). Only 8.70% (N = 4) indicated using online gambling habitually (see Fig. 2).
3.1. Gambling habits and modifications during the lockdown

Most of the respondents (N= 34, 73.91%) reported that no variation occurred during the first lockdown in terms of gambling frequency, followed by increased gambling (N= 10, 21.74%) and a decreasing trend (N= 2, 4.35%). Only one person reported increased online gambling (2.17%) (see Fig. 3). Although most participants did not express symptoms related to addictive gambling behaviors, 39.13% of the sample (N= 18) revealed increased craving, and 19.57% (N= 9) indicated symptoms associated with abstinence. Only three respondents (6.52%) perceived the variations occurred as a problem and decided to speak with somebody, or to reach out for help (N= 5, 10.87%), blocking the app (100%) or referring to specific interlocutors (N_therapist= 2, 40.00%; N_close= 3, 60.00%; N_other= 2, 40.00%). Results are displayed in detail in Table 2.

Fig. 2. Distribution of the preferred gambling activity in the sample. * = participants could indicate more than one preference.

3.2. Comorbidity and other mental health issues

Responses to inquiries on comorbidity and other psychopathological symptoms are shown in Table 3. 45.65% of the sample indicated to have been diagnosed with a mental disorder, predominantly a mood disorder (N= 20), followed by addiction (N= 5, 23.81%), personality disorder (N= 3, 14.29%), psychotic disorder (N= 2, 9.52%), and eating disorder (N= 1, 4.76%). 26.09% declared to use alcohol and 8.70% to use other substances (see Fig. 4). Half of the sample was undergoing pharmacological therapy, mainly taking anxiolytics (65.22%) and antidepressants (47.83%).

With regards to the variations in mental health symptoms that might have occurred during the period of self-isolation, 52.17% of respondents declared increased irritability, followed by mood fluctuation (N= 20, 43.48%), anxiety and sleep disorders (N= 18, 39.13%, eating disorders

Table 2

Socio-demographic characteristics of the sample.

| Variable       | Mean (SD) | N   | %      |
|----------------|-----------|-----|--------|
| Age            | 52.62 (15.69) |     |        |
| Sex            |           |     |        |
| Male           |           | 39  | 84.78% |
| Female         |           | 7   | 15.22% |
| Marital Status |           |     |        |
| Single         |           | 17  | 36.96% |
| Married        |           | 14  | 30.43% |
| Separated      |           | 9   | 19.57% |
| Widowed        |           | 2   | 4.35%  |
| NS             |           | 4   | 8.70%  |
| Occupation     |           |     |        |
| Employee       |           | 23  | 50%    |
| Student        |           | 1   | 2.17%  |
| Unemployed     |           | 8   | 17.39% |
| Retired        |           | 10  | 21.74% |
| NS             |           | 4   | 8.69%  |
| Living with    |           |     |        |
| Spouse/partner |           | 14  | 30.43% |
| Parents        |           | 7   | 15.22% |
| Alone          |           | 17  | 36.96% |
| NS             |           | 8   | 17.39% |
| Gambling Severity |       |     |        |
| Mild           |           | 2   | 4.35%  |
| Moderate       |           | 13  | 28.26% |
| Severe         |           | 29  | 63.04% |
| NS             |           | 2   | 4.35%  |
| Gambling Type* |           |     |        |
| VLT            |           | 35  | 76.09% |
| Sports betting |           | 5   | 10.87% |
| Scratch Cards  |           | 5   | 8.70%  |
| Lottery        |           | 2   | 4.35%  |
| Online         |           | 4   | 8.70%  |

N= Number of respondents; % = percentage; NS = non specified; VLT = Video Lottery Terminal.

* for this question, participants could express more than one preference.

Fig. 3. Variations of gambling activity of the sample during the national lockdown.
Table 2: Responses to gambling habits and variations during the lockdown.

| Variable                      | Yes | No |
|-------------------------------|-----|----|
| Variations in gambling        | 12  | 34 |
| Increased                     | 10  | 29.74% |
| Decreased                     | 2   | 4.23% |
| Craving                       | 18  | 29.13% |
| Abstinence                    | 19  | 37.80.43% |
| Online gambling               | 5   | 8.073 |
| Online gambling pre-lockdown  | 9   | 19.57% |
| Online increased online gambling | 1  | 2.17% |
| Abstinence                     | 3   | 6.52% |
| with a family member (N = 3)  | 2   | 66.3% |
| with a friend (N = 3)         | 1   | 33.3% |
| with a health worker (N = 3)  | 2   | 66.6% |
| other NS (N = 3)              | 2   | 66.6% |
| Stabilizers                   | 10  | 66.67% |
| with a family member (N = 3)  | 2   | 66.67% |
| with a friend (N = 3)         | 1   | 33.3% |
| with a health worker (N = 3)  | 2   | 66.6% |
| other NS (N = 3)              | 2   | 66.6% |
| Stabilizers                   | 10  | 66.67% |

N= Number of respondents; % = percentage; NS = not specified.

* for this question, participants could express more than one preference.

Table 3: Responses to other mental health issues, pharmacotherapy, psychopathological symptoms, and variations during the lockdown.

| Variable                           | Yes | No |
|------------------------------------|-----|----|
| Psychiatric diagnosis Diagnosis    | 21  | 65.6% |
| Mood disorder (N = 21)             | 20  | 95.2% |
| Alcohol use (N = 45)               | 12  | 26.09% |
| Substances use (N = 45)            | 4   | 8.70% |
| Pharmacological therapy            | 3   | 65.22% |
| antidepressants                    | 11  | 47.83% |
| mood stabilizers                   | 3   | 13.04% |
| stimulants                         | 2   | 8.70% |
| Other                              | 7   | 2.87% |
| Variations during self isolation   | Yes | No |
| N= Number of respondents; % = percentage; NS = not specified.

* for this question, participants could express more than one response.

3.3. Gambling habits and depressive symptoms

With regards to depressive symptoms, the sample scored an average of 9.28. Participants mostly had no symptoms related to depression (N=23, 50.00%) or mild manifestations (N = 15, 32.61%). 15.22% of the sample scored moderate levels of depression, and only one participant reached severe levels. Results regarding the HAM-D and gambling features are described in Table 4.

T-tests revealed differences between the different levels of depression, with regards to reported gambling severity (t_{45}= 6.57, p<0.001) and modifications occurred during the social distancing period (t_{45}= 7.86, p<0.001). Further investigations revealed a statistically significant levels of depression between those reporting mild (M_{mild}= 3.5; SD= 3.5) and moderate gambling severity (M_{moderate}= 10.31; SD= 3.86) (t_{13}= 2.34, p= 0.036). An other significant difference was found on level of depression between respondents who had no variations in gambling activity (M_{no variations}= 8.24; SD= 6.19) and those reporting an increasing practice (M_{increased}= 14.20; SD= 7.66) (t_{41}= 2.52, p= 0.015).

3.4. Factors predicting gambling severity

To explore the existence of a predicting factor for gambling severity, a multiple regression analysis was adopted. All the dichotomous variables (Yes/No) into dummy variables prior analysis. Among the factors assessed in the telephonic interview, only the model related to the type of gambling nearly reached the level of significance (see Table 5). Within this model, VLT resulted as the factor that was more likely to predict the gambling severity. Taking a further look into this result, the respondents that indicated VLTs as a preferred gambling type (N= 35) also reported moderate levels of gambling severity (N= 14; 40%) or severe gambling activity and (N= 21; 60%).

4. Discussion

The current study sought to investigate the possibility of a behavioral change within a cohort of gambling patients at the Addiction Treatment Unit of Trento, alongside whether or not they experienced any worsening symptoms associated with mental health (e.g., anxiety, depression, insomnia) as a result of prolong periods of self-isolation during the first onset of the coronavirus pandemic. Concerning the possibility that online gambling would increase during this period, we registered a very marginal increase (2.17%) in online gambling activities. Such a lack of online gambling during the lockdown is corroborated by some recent findings (Xuereb et al., 2021), but in contrast with others (Lischer et al., 2021, Häkansson, 2020), where those with an increased online activity were more likely to be problematic gamblers. Regarding the gambling situation during the lockdown on a larger national level, Lugo et al. found a decrease in gambling activity, including online gambling and explained it as it was due to national regulations banning various types of land-based games (Lugo et al., 2021). However, the answer to such a complex and unprecedented phenomenon is heterogeneous and the impact of the pandemic on online gambling is still up to debate, therefore more studies on the changes in gambling activity and their relation to other behavioral addictions are required. In terms of our investigations, result could be reinforced by the older age of the group of most of the patients, as they could have been less familiar with technological devices and use of the internet. Although no increase in online gambling was recorded during the lockdown, more than half of the interviewed (52.17%) felt more irritable during the lockdown. In addition, high rates of respondents reported mood fluctuation (43.48%) or anxiety (39.13%), confirming the existence of comorbidity coherently with the literature (Dash et al., 2019, Black and Moyer, 1998, Petry et al., 2005, Lorains et al., 2011, Thomsen et al., 2009, Sharmar et al., 2021).

Moreover, gambling severity resulted significantly associated with levels of depression. Similarly, the mean score of depression was statistically significant between respondents who declared no variations...

(N= 12, 26.09%), and alterations of thought (N=8, 17.39%). 19.56% reported modifications in alcohol use (N_{increased}= 6, 13.04%; N_{decreased}= 3, 6.52%), 4.35% indicated increased substance intake, and 2.17% a decreased substance consumption. Only 1 participant declared symptoms associated with substance craving.
Table 4
Distribution of responses to the Hamilton depression rating scale.

| Variable     | Mean (SD) | N   | %   | Gambling Severity | Variation in Gambling |
|--------------|-----------|-----|-----|------------------|-----------------------|
|              |           |     |     | Differences | p-value | Differences | p-value |
| HAM-D        | 9.28 (6.86)| 46  | 100%| t = 6.57     | <0.001   | t = 7.86   | <0.001 |
| 0–7 (none)   |           | 23  | 50.00%|          |         |           |         |
| 8–17 (mild)  |           | 15  | 32.61%|          |         |           |         |
| 18–24 (moderate) |       | 7   | 15.22%|          |         |           |         |
| over 25 (severe) |       | 1   | 2.17% |          |         |           |         |

N= Number of respondents; % = percentage; HAM-D = Hamilton Depression Rating Scale; t = Student’s t-test. Results in bold are significant.

Table 5
Multiple regression on gambling severity.

| Variable        | β   | SE  | t   | n² | F  | p-value |
|-----------------|-----|-----|-----|----|----|---------|
| Model           |     |     | 0.20|    | 2.49| 0.05    |
| VLT             | 0.62| 0.24| 2.57| 0.01*| 0.01*| 0.05    |
| Scratch Cards   | 0.56| 0.32| 1.74| 0.08|     |         |
| Lottery         | 0.91| 0.44| 2.06| 0.05|     |         |
| Online Gambling | 0.53| 0.32| 1.66| 0.11|     |         |
| Sports Betting  | 0.20| 0.42| 0.48| 0.63|     |         |

SE = standard error of unstandardized coefficient. Results in bold are significant.

in gambling and those reporting increased activity. These results suggest that the awareness of moderate or increased gambling could exert greater preoccupation and mood aggravation, especially in times of uncertainties and potential financial insecurities. Concerning the factors that might predict gambling severity, we found that preferring VLT as gambling activity corresponds to moderate and severe levels of intensity. This finding is in line with previous studies indicating that VLT players are at greater risk to develop problematic gambling (Holgraves, 2009), especially when depression co-occurs (Levesque et al., 2018).

The onset of the COVID-19 pandemic could be pointed to as an additional reason for the increase of psychiatric symptoms among gamblers: the fear and anxiety related to the risk of being infected were generally really high among the population (Serafini et al., 2020), so it is not so far-fetched to think that individuals with an already fragile mental health could be affected in a significant way. This study provides an insightful exploration into the importance of implementing therapies focused on treating psychiatric symptoms such as depression, anxiety, stress, and irritability, extensively confirmed as comorbidities of the Gambling Disorder. While providing an overview of the Italian gamblers’ community, this study is not without limitations. Firstly, the sample was composed mainly of men (84.78%), leaving the problem underexplored in the female population. Secondly, the group’s average age is higher than other studies on gambling, where the sample is usually younger. Thirdly, if, on the one hand, the focus on a local reality concedes the possibility to implement results in the clinical work more promptly, it precludes the exploration of the problem in the broader population, limiting the number of participants to a small targeted sample. The sample size, in fact, might have affected the statistical significance of the results, although a total of 46 participants can be enough for exploratory studies (Daniel, 2011). In addition, phone call interviews were adopted instead of face-to-face interviews. This procedure allowed the researchers to conduct the study following a safe procedure and keeping a personal touch, which is fundamental in health care services. At the same time, the phone interview as a methodological approach requires short and precise questions to facilitate comprehension. As well, replies need to be concise to reduce the possibility of collecting inaccurate information and might be limit the exploration of the targeted construct to essential elements. (Frey and Fontana, 1991). Furthermore, it is also essential to consider different regulations concerning gambling activity in each country since the restrictions imposed by one government could be more or less strict compared to another one (Sharman et al., 2021). Therefore, it is mandatory to consider national policies when comparing studies conducted in different countries. The cross-sectional nature of the present investigation did not permit to assess exhaustively the possible causal association between the variables considered. A follow-up study would allow to study more in detail the causation among phenomena and register further variations in gambling habits (i.e., type, frequency, preferences) in the period post lockdown, after the physical venues have been reopened.
Fundings

The study was supported by the Addiction Treatment Unit (SERD) of the local public health services of the Province of Trento, Italy.

Ethics

The Ethics Committee of the local public health services approved the present study. It complied with the Declaration of Helsinki and with the European General Data Protection Regulation. The participants provided their written informed consent to participate in this study.

Data availability

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Declaration of Competing Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

CRediT authorship contribution statement

Ilaria Cataldo: Investigation, Formal analysis, Data curation, Writing – original draft, Writing – review & editing. Eleonora Casonato: Investigation, Writing – original draft, Writing – review & editing. Ermelinda Levari: Methodology, Conceptualization, Data curation, Writing – original draft, Writing – review & editing. Funding acquisition. Attilio Negri: Data curation, Writing – original draft, Writing – review & editing. Pierluigi Simonato: Data curation, Writing – original draft, Writing – review & editing. Giulia Tomasi: Methodology, Data curation, Writing – original draft, Writing – review & editing. Giovanna Branz: Data curation, Writing – original draft, Writing – review & editing. Aurora Coppola: Data curation, Writing – review & editing. Pietro Gianfranceschi: Data curation, Writing – review & editing. Martina Stefanfani: Data curation, Writing – review & editing. Miriam Vanzetta: Data curation, Writing – review & editing. Anna Franceschini: Data curation, Writing – review & editing. Martina Stefanfani: Data curation, Writing – review & editing. Supervision, Writing – original draft. Ornella Corazza: Conceptualization, Methodology, Writing – review & editing. Supervision, Funding acquisition, Writing – original draft.

Acknowledgments

The authors would like to acknowledge all the respondents that took part in the study.

References

Alkhamees, A.A., Alahsaid, S.A., Aljunaydi, A.A., Almoheimed, A.S., Aljahani, M.S., 2020. The psychological impact of COVID-19 pandemic on the general population of Saudi Arabia. Compr. Psychiatry 102, 152192.

Black, D.W., Moyer, T., 1998. Clinical features and psychiatric comorbidity of subjects with pathological gambling behavior. Psychiatr. Serv. 49 (11), 1434–1439.

Blaszczynski, A., McGonagle, N., Frankova, A., 1990. Boredom proneness in pathological gambling. Psychol. Rep. 67 (1), 35–42.

Buchanan, T.W., McMullin, S.D., Basley, C., Weinstein, J., 2020. Stress and gambling. Curr. Opin. Behav. Sci. 31, 8–12.

Daniel, J., 2011. Sampling Essentials: Practical Guidelines for Making Sampling Choices. Sage Publications.

Dah, G.F., Slutske, W.S., Martin, N.G., Statham, D.J., Agrawal, A., Lynskey, M.T., 2019. Big five personality traits and alcohol, nicotine, cannabis, and gambling disorder co-morbidity. Psychol. Addict. Behav. 33 (4), 420.

Dawson, G.A., Goodwin, S., Jackson, A.C., Merksours, S.S., Francis, K.L., Christensen, D.R., 2015. Prevalence of psychiatric co-morbidity in treatment-seeking problem gamblers: a systematic review and meta-analysis. Aust. N. Z. J. Psychiatry 49 (6), 519–539.

Frey, J.H., Fontana, A., 1991. The group interview in social research. Soc. Sci. J. 28 (2), 175–187.

Gainsbury, S.M., Angus, D.J., Blaszczynski, A., 2019. Isolating the impact of specific gambling activities and modes on problem gambling and psychological distress in internet gamblers. BMC Public Health 19 (1), 1–16.

Håkansson, A., Fernández-Aranda, F., Menchón, J.M., Potenza, M.N., Jiménez-Murcia, S., 2020. Gambling during the COVID-19 crisis—a cause for concern. J. Addict. Med. 14 (4), e10.

Håkansson, A., 2020. Changes in gambling behavior during the COVID-19 pandemic—a web survey study in Sweden. Int. J. Environ. Res. Public Health 17 (11), 4013.

Hamilton, M., Guy, W., 1976. Hamilton depression scale. Group 1, 4.

Holdsworth, L., Nuske, E., Iling, N., 2015. A grounded theory of the influence of significant life events, psychological co-morbidities and related social factors on gambling involvement. Int. J. Ment. Health Addict. 13 (2), 257–273.

Holgraves, T., 2009. Gambling, gambling activities, and problem gambling. Psychol. Addict. Behav. 23 (2), 295–300.

King, D., Del庆brho, P., Griffiths, M., 2010. The convergence of gambling and digital media: implications for gambling in young people. J. Gambl. Stud. 26 (2), 175–187.

Léonard, D., Sévigny, S., Giroux, I., Jacques, C., 2018. Psychological vulnerability and problem gambling: the mediational role of cognitive distortions. J. Gambl. Stud. 34 (3), 807–822.

Lindner, P., Forström, D., Jonsson, J., Berman, A.H., Carbring, P., 2020. Transitioning between online gambling modalities and decrease in total gambling activity, but no indication of increase in problematic online gambling intensity during the first phase of the COVID-19 outbreak in Sweden: a time series forecast study. Front. Public Health 8.

Lischler, S., Steffen, A., Schwarz, J., Mathys, J., 2021. The influence of lockdown on the gambling pattern of Swiss casino players. Int. J. Environ. Res. Public Health 18 (4), 1973.

Lorains, F.K., Gowlishaw, S., Thomas, S.A., 2011. Prevalence of comorbid disorders in problem and pathological gambling: systematic review and meta-analysis of population surveys. Addiction 106 (3), 490–498.

Lugo, A., Stival, C., Paroni, L., Amerio, A., Carreras, G., Gorini, G., Mas-trobrodittsa, L., Minutillo, A., Mortalli, C., Odone, A., et al., 2021. The impact of COVID-19 lockdown on gambling habit: a cross-sectional study from Italy. J. Behav. Addict.

Meyer, K.B., Eastwood, J.D., 2010. Is boredom associated with problem gambling behaviour? It depends on what you mean by ‘boredom’. Int. Gambl. Stud. 10 (1), 91–104.

Orford, J., 2004. Low income and vulnerability for gambling problems. Addiction 99 (10) 1356–1360.

Petry, N.M., Stinson, F.S., Grant, B.F., 2005. Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: results from the national epidemiologic survey on alcohol and related conditions. J. Clin. Psychiatry 66 (5) 0–0.

Potenza, M.N., Xian, H., Shah, K., Schererr, J.F., Eisen, S.A., 2005. Shared genetic contributions to pathological gambling and major depression in men. Arch. Gen. Psychiatry 62 (9), 1015–1021.

Saglietto, A., D’Ascanzo, F., Zoccai, G.B., De Ferrari, G.M., 2020. COVID-19 in Europe: the Italian lesson. Lancet 395 (10250), 1110–1111.

Serafini, G., Parmigiani, B., Amerio, A., Aguglia, A., Sher, L., Amore, M., 2020. The psychological impact of COVID-19 on the mental health in the general population. QJM Int. J. Med. 113 (8), 531–537.

Sharman, S., Roberts, A., Bowden-Jones, H., Strang, J., 2021. Gambling in COVID-19 lockdown in the UK: depression, stress, and anxiety. Front. Psychiatry 12, 1.

Smith, L., Jacob, L., Yakkundi, A., McDermott, D., Armstrong, N.C., Barnett, Y., López-Sánchez, G.F., Martin, S., Butler, L., Tully, M.A., 2020. Correlates of symptoms of anxiety and depression and mental wellbeing associated with COVID-19: a cross-sectional study of UK-based respondents. Psychiatry Res. 291, 113–138.

Thomsen, K.R., Callesen, M.B., Linnert, J., Kringleby, M.L., Møller, A., 2009. Severity of gambling is associated with severity of depressive symptoms in pathological gamblers. Behav. Pharmacol. 20 (5-6), 527–536.

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, S.C., Ho, R.C., 2020. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in china. Int. J. Environ. Res. Public Health 17 (5), 1729.

Xuebre, S., Kim, H.S., Clark, L., Wehl, M.J., 2021. Substitution behaviors among people who gamble during COVID-19 precipitated casino closures. Int. Gambl Stud 1–15.

xxx., 2013. American Psychiatric Association and others, Diagnostic and Statistical Manual of Mental Disorders (DSM-5®). American Psychiatr Pub.