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The impact of the COVID-19 pandemic on gamblers and their families in Italy: A systematic review

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Abstract: As one of the first countries to be hit by the COVID-19 pandemic, as well as the fourth ranked country in the world for money lost on gambling in 2019 (over €19 billion), Italy is a perfect observatory in which to study how the pandemic affected gambling behaviour. Pandemic-induced restrictions led to long periods of reduced opportunities for land-based gambling in 2020 and 2021. This impacted particularly slot machines, which are the most financially damaging type of gambling, that causes around 80% of cases of gambling disorder referred to the Italian Addiction Treatment Services. This systematic review describes the consequences of this involuntary public health measure for gamblers and their families. Most of the reviewed studies showed, in the investigated sample, no craving, an overall decrease in gambling behaviours, and little switching from land-based to online gambling during the lockdown. Affected family members appreciated the immediate effects of their relatives' abstention from gambling, and a better family climate with better relationships resulted. But they remained concerned about the expected reopening at the end of the pandemic lockdown. These results show how effective such an approach would be if it were long-lasting and suggests that measures to limit the accessibility of gambling are crucial to reduce the harm it can cause for people and families.

Keywords: Gambling, Italy, COVID-19, Lockdown, Online, Systematic Review.

Introduction

Among the secondary outcomes of the COVID-19 pandemic, the effects of the restrictions on public gatherings on gambling habits and gamblers' mental health have been one significant interest for researchers around the world. To the authors' knowledge, five scientific reviews analysing the empirical work on the subject were published in 2021: a scoping review in February (Brodeur et al., 2021); a review on emerging data issued in July (Hodgins & Stevens, 2021); two reviews published in September (a narrative review by Sachdeva et al., 2021, and a rapid review by Clarke et al., 2021); and a systematic review in November (Barbato et al., 2021).

The Italian situation is of particular interest because of both the early onset of the pandemic in the country, and the high pervasiveness of gambling that had already existed. Furthermore, because of the devastating effects of the disease in this early stage, especially drastic measures restricting personal freedom (including strict stay-at-home orders,) were enforced by the government in response.

In 2019, prior to the outbreak, Italy was ranked fourth in the world in global (both land-based and online) gambling losses - after the USA, China (with Macau) and Japan - with almost €20 billion lost. These four countries alone account for 54% of global gambling losses in the world (GBGC, 2021a), with Italy accounting for 5%.

In 2020, global gambling losses in Italy dropped to less than €13 billion (ADM, 2021) due to restricted access imposed by public health measures. This means that almost €7 billion were saved by Italian households in 2020. The revenue of the worldwide global gambling market also fell from \$455 billion (USD) in 2019 to \$355.9 billion in 2020 (GBGC, 2021b).

However, online gambling was not affected by pandemic restrictions and presented an opportunity for gambling without leaving one's home. Consequently, online gambling losses worldwide increased from \$54.6 billion in 2019 to \$59.8 billion in 2020 (GBGC, 2021c). Disregarding the lockdown, the general trend in online gambling had been already steadily increasing in Italy, rising 35% in the three-year period before the pandemic (ADM, 2020); the amount of money lost through online gambling in Italy in 2019 was €1.8 billion, and in 2020 it was €2.7 billion (ADM, 2021).

According to Pacifici et al. (2019), 36.4% of the Italian adult population gambled at some level before the pandemic, and 3% (approximately 1,500,000 people) are problematic gamblers. Gambling disorder is defined in the DSM-5 (APA, 2013) as a persistent and problematic gambling behaviour that can cause clinically significant impairment or distress. For every individual suffering from gambling disorder, between 5 and 17 others are involved (including family members

and contacts) and negatively affected (Irie & Kengo, 2022; Valentine & Hughes, 2010). These data give an idea of how many people can be severely harmed by gambling, and by “passive” gambling - that is, the impact of their gambling on their spouses, partners, family members, and others.

On March 11, 2020, the World Health Organisation officially declared COVID-19 to be a pandemic, caused by SARS-CoV-2 (Cucinotta & Vanelli, 2020), and Italy was one of the first countries in the world to see the consequences of widespread infection with the disease (Note1). The Italian National Institute of Health (ISS Epicentro, 2022) reported that there were 21,681,279 confirmed cases of COVID-19 in Italy, with 170,680 deaths, as of August 17, 2022.

Italy was the first country to impose prolonged nation-wide stay-at-home orders in an attempt to stop the spread, confining over 60 million people to their homes. These measures were considered to be among the most radical implemented (Amerio et al., 2021) and worldwide different countries responses to the emergency were quite heterogeneous, ranging from very mild to very restrictive (Capriulo et al, 2020; Barbato et al., 2021). Italy enacted very strict confinement measures, whereas Sweden - where many studies about COVID-19's effects on gambling have taken place (Håkansson, 2020; Håkansson & Widinghoff, 2021; Håkansson et al., 2021; Lindner et al., 2020) - did not impose any lockdowns (Yarmol-Matusiak et al., 2021).

Thus, the Italian data are not comparable with those of other studies conducted abroad during that period, precisely because of the different containment measures implemented in different states (Barbato et al., 2021). In consideration of the severe restrictions imposed on citizens, in Italy, an involuntary social laboratory of particular interest for studying some variables inherent in the link between the availability, the accessibility, the prevalence, the frequency, and the intensity of gambling indeed occurred. In fact, the restrictions and social isolation due to the SARS-CoV-2 pandemic of COVID-19 led to two long periods of reduced availability of land-based gambling in the country. The first lockdown period for gambling was between March 2020 and June 2020, and the second was from November 2020 to June 2021. During these two periods, it was not possible to gamble with land-based electronic gambling machines (EGMs), slot machines, or video lottery terminals (VLTs). Also sports betting in shops and venues was forbidden. Other than lottery scratch cards, the only available gambling was internet-based. An indicative overview of the legislative provisions adopted from March to November 2020 on the gambling shutdown in Italy can be found in Capriulo et al. (2020, p. 2). Land-based machine gambling represents the main game of chance played by 80% of disordered gamblers undergoing treatment from the Italian Addiction Treatment Services in Italy (Avanzi et al., 2020; Pacifici et al., 2019), and EGMs can be considered the most financially damaging type of gambling (Marionneau et al., 2022; Schüll, 2012; Sulkunen et al., 2018).

These measures ended up unintentionally resembling policy initiatives, such as restrictions on the general availability of gambling, which are a type of environmental prevention among best practices as described by Williams et al. (2012). This made it possible to observe the consequences for the experiences, perceived well-being, and representations of gamblers and the family members of disordered gamblers (AFMs) undergoing treatment when deprived of access to gambling.

Many Countries imposed restrictions on online gambling during the pandemic, including reduced spending limits on online gambling or restrictions on advertisement (e.g., Research Chair on Gambling Studies, 2020). But this was not the case of Italy, where total ban on gambling advertising had already been implemented in 2019 (Law no 96, 2018). This ban may have contributed to hindering the transition from land-based gambling to online gambling, but no other specific measures have been taken to limit online gambling during the lockdown in Italy.

Several hypotheses have been proposed about the pandemic's impact on gamblers, particularly disordered gamblers, and their families in Italy. It had been assumed that forced 24-hour cohabitation with a family member could show withdrawal symptoms in gambling-addicted patients. For those with this disorder, the inability to gamble was thought to cause increased stress levels, restlessness, aggression, craving, and sleep disturbances to the point of exacerbating the already-difficult relationships of forced cohabitation, as happened in a large proportion of Italian adults (Amerio et al., 2021). A major shift to online gambling for addicts was also predicted (Auer et al., 2020; Davis, 2020), and considerable demands for treatment were anticipated (Avanzi et al., 2020; Foschini, 2020).

The lockdown had a considerable impact on addiction support services' organization. Many Italian care and support services suspended face-to-face access for several months. Digitalisation in Italian health services before the pandemic was also quite low, hindering and slowing the necessary transition to remote counselling. Initially, it was only possible to guarantee telephone consultations, and only for patients who were already undergoing treatment. Only later were services reorganised to enable good quality remote interventions. This situation negatively affected the accessibility of treatment services, especially among excessive gamblers not yet in treatment, increasing their experienced harm and suffering.

With this review, we aim to examine the impact of the two lockdown periods during the COVID-19 pandemic on problem gambling in Italy in 2020 and 2021. Reviewing the scientific literature, we were particularly interested in focusing on and investigating the following COVID-19 sequence of events and effects in Italy: "containment of land-based gambling offers due to lockdown closures – alleviation of consumer pressure – decrease in gambling behaviour – preventive and supportive value in the treatment of this environmental restriction."

Methods

This review followed the PRISMA 2020 guidelines' search strategy for systematic reviews (Page et al., 2021). The process consisted of four main phases after establishing the research goal: (1) identifying candidate studies, (2) screening candidate studies, (3) assessing studies for eligibility, and (4) identifying studies to be included. The selection process of studies to be included was entered into a flow chart (Fig. 1), and the data collected from the identified studies were discussed and summarised in Table 1.

The main research question guiding this review is “What are the impacts of COVID-19 on gambling in Italy?”

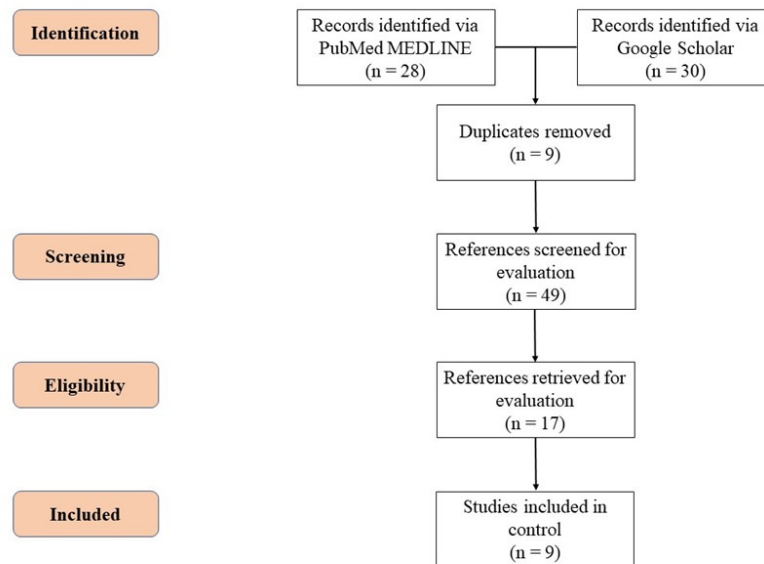


Fig. 1. Flow chart of the search strategy and study selection

Identification of the Candidate Studies

An electronic literature search was conducted on August 14, 2022, using keywords related to “COVID-19,” “gambling,” and “Italy”, in the PubMed Medline database. This search was combined with a manual search in Google Scholar. As a result, 58 articles were identified across the two search engines: 28 in PubMed Medline and 30 in Google Scholar. After removing duplicates (n = 9), 49 articles constituted the screening sample.

Inclusion Criteria

Studies needed to meet the following inclusion criteria to be eligible for the review: (1) a main theme related to gambling and COVID-19 in Italy; (2) in an English language publication; and (3) published in a peer-reviewed journal. In total, 17 studies were retrieved and retained as eligible for a detailed evaluation by team members.

Studies Assessed for Eligibility

The researchers, MA, DA, and DC, performed a full-text review of each article. Divergences were resolved through discussion, after which eight articles were excluded for the following reasons:

- Studies that were not primarily about COVID-19 and gambling (n = 4): Amerio et al. (2021, 2022); Marionneau et al. (2022); Martinotti et al. (2022);
- Reviews (n = 1): Barbato et al. (2021);
- Not empirical research papers (n = 2): Capriulo et al. (2021); Migliaccio and Di Stazio (2021);
- Duplicates (n = 1): Alessi et al. (2022).

Studies Included

After screening, nine studies were included in this review, and the data obtained were entered into a flow chart template for systematic reviews.

Table 1. Description of the included studies.

<u>Authors and publication date</u>	<u>Study period</u>	<u>Sample size and target population</u>	<u>Objectives</u>	<u>Main results</u>	<u>Authors' Conclusions</u>	<u>Limits</u>
Cataldo et al., 2022	May – July 2020	46; Adults – Pathological gamblers	"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."	- Most respondents reported no variation in gambling; while a small percentage reported increased gambling and a smaller percentage reported decreased gambling - Increase in online gambling was reported by only one person - Almost half of the sample reported a diagnosis with a mental disorder	"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%)."	- The sample had a strong prevalence of males - The age mean is higher than that of other studies focused on gamblers - The focus was limited to a small local reality
Donati et al., 2021	April – May 2020	135; Adults – Problem gamblers under treatment	"...the general goal of this work was to investigate the psychological and behavioral effects of the COVID-19 lockdown on Italian pathological gamblers under treatment in order to gain information regarding gambling prevention and treatment."	- The distribution of abstinent and non-abstinent gamblers didn't vary - Overall, there was a decrease in gambling behaviors and craving associated with a decrease of gambling availability - It wasn't observed a shift towards online gambling - Improvement of emotional state in	"Forced abstinence from gambling, together with the presence of family members and with an international climate of health emergency, seems to improve the quality of life of PGs under treatment and even favors intentional responsibility towards the future, which, however, may not be sufficient in itself to maintain the abstinence from gambling."	- The sample isn't representative for all problem gamblers, just for problem gamblers seeking help - The study began two months into lockdown - There were no control sample

				general has been observed		
Donati et al., 2022	May - June 2020 for AFMs, April - May 2020 for relatives in treatment for GD	53 Affected Family Members (AFMs) of disordered gamblers; For 42 out of the 53 their relative in treatment for GD - Adults	"... the final goal of the current study was to investigate the psychological state of disordered gamblers' AFMs during the COVID-19 lockdown in Italy. We were interested in understanding if the unavailability of most land-based gambling offerings during the lockdown created relief for AFMs. Moreover, to better understand the specificity of this target group, we also compared AFMs to their relative with GD in relation to the quality of family relationships and emotional state during the lockdown. In detail, we aimed to describe AFMs' life conditions during the lockdown, with particular attention to their emotional state, psychological distress, involvement in potentially addictive behaviors, and their personal perceptions of changes in their life because of the lockdown, and also their personal relationship with the COVID-19 disease and related restrictions. We also investigated AFMs' perceptions of their relative's gambling behavior, their gambling-related emotions and feelings, their coping strategies to face their relative's gambling addiction, and their expectations for the future. Finally, we compared AFMs to their disordered gambler relatives in terms of perceived quality of family relationships and emotional state."	- The emotional state of Affected Family Members was worse or equal than before lockdown - AFMs still perceive family problems due to the addiction of their relative - AFMs kept up with their coping strategies and engaged many potential addictive behaviors - AFMs level of fear, anxiety and stress where higher than before lockdown - AFMs experienced fear when thinking about the reopening of gambling opportunities at the end of the lockdown	"Overall, this study shows that disordered gambling's AFMs can be considered as a particularly at-risk group who deserves focused clinical attention even during gambling closures related to pandemic lockdown."	- There was a small sample - Data collection was performed only in northern Italy - The AFMs were mostly females - In order to have easier data to work with, the quantitative measures were dichotomized
Frisone et al., 2020	March - November 2020	200; Adults – General population	"This pilot study highlights if the problem gambling, during a period of isolation such as that of COVID-19, can be explained by personality or sociodemographic characteristics, therefore it investigates the emotional and impulsive characteristics of problem gamblers and examines whether those who are adults, those who have more years of study or who work are less likely to have problem gambling."	- Problem gambling seems influenced by age, being male, having impulsive characteristics and low levels of study	"The results of this exploratory research suggest that in a period characterized by a pandemic, problem gambling is associated with some personality and sociodemographic characteristics. Moreover, age, male gender, low levels of study and impulsive characteristics play a decisive role in problem gambling."	- Social desirability may have influenced the responses - The sample size is small
Lugo et al., 2021	April - May 2020	6003; Adults – General population	"We aim to evaluate short-term effects of lockdown restrictions on gambling behaviors in Italy."	- Overall, there was a decrease in gambling behaviors (online gambling too), but there was an increase for vulnerable populations	"Although gambling substantially decreased during lockdown, time spent in gambling slightly increased. The strong relationship found between compromised mental health and addictive behaviors calls	- Using a web survey may have excluded a portion of population less familiar with internet - Response-shift bias may have affected the respondents

					for urgent policies to prevent vulnerable populations from increasing and developing severe gambling addiction."	- Responses might have been affected by a seasonal effect
Lupo et al., 2022	April - September 2020	502; Adults - Nurses	"Measuring the phenomenon of gambling and Internet addiction, with analysis of attitudes and psychophysical consequences among nurses working in different care settings."	- Desire for strong emotions, loneliness and social discomfort results important risk factors for gambling addiction - There is a notable level of severe gambling addiction among Italian nurses	"The study highlighted an emerging social problem, and the results may be just the tip of the iceberg. Given the lack of knowledge of these phenomena and a high percentage of people who suffer from them but are afraid to admit it and get help, this study could also be useful in expanding knowledge and allow more professionals to get help and learn about possible treatments and cures for the resolution of these addictions."	- The survey may have had a prevalence of nurses interested in the matter, since participation was voluntary - Sample size may be too small - There was no follow-up investigating psychological consequences - Long-term effects weren't analyzed - Participants may have been reluctant to declare their addiction due to the electronic disclosure
Martinotti et al., 2020	March - May 2020	153 outpatients and inpatients in residential programs (gambling as primary 12; gambling as secondary 20) (total gamblers 33, in the past 11); Adults	"... we aim at evaluating the impact that the COVID-19 pandemic, and the relative containment measures, have had on a real-life sample of patients suffering from substance use disorders (SUDs) and/or behavioral addictions."	- A link between quality of life and craving has been observed - Craving was lower for inpatients in comparison with outpatients - A little less than half the sample reported a psychiatric condition	"The presence of a moderate psychopathological burden correlated to poor quality of life and low craving scores represented the main outcomes."	- There was no follow-up to explore long-term consequences - A part of the sample filled out the questionnaire without the verification of a clinician - Craving was assessed using a visual analogue scale instead of a more complex scale
Salerno & Pallanti, 2021	March 23 - April 20, 2020	254; Adults - General population	"In consideration of data from a general population survey reported by Hakansson (2020) demonstrating that a non-negligible percentage of respondents reported an increase of gambling behavior during the COVID-19 pandemic, we aimed to investigate if there was a similar increase in Italian population during the lockdown period, and if there were some differences in demographic as well psychological variables (e.g., perceived stress, distress, anxiety, depression, well-being) between those who had gambling problems and those who did not."	- Both new and chronic gamblers perceive higher levels of anxiety, depression, stress, somatization, distress, hostility and lower levels of well-being compared to those who never gambled - chronic and new gamblers were older than those who didn't gamble	"... our findings indicated a consistent proportion of business owners and unemployed individuals who reported pathological gambling during the lockdown period, and a higher level of perceived stress, distress and hostility in both chronic and new gamblers compared to those who never reported gambling behavior."	- Due to lockdown the study was conducted using an anonymous web survey - SOGS or other screening tools for pathological gambling were not employed - Pre-existing medical problems, psychiatric conditions and vulnerability factors were not assessed - Family composition (such as the presence of children) was not investigated - Data obtained from social media may differ from data obtained with physical channels
Zamboni et al., 2021	May - June 2020	1196; Adults - General population	"...we were interested in measure how much loss of control was perceived regarding online gambling, online shopping, the fruition of online pornographic content and web navigation."	- Small increase in land-based gambling - Small increase in online gambling	"... there was no significant increase in potentially addictive behaviors, nor an increase in loss of control of these behaviors when enacted online. However, the loss of control in online shopping and web navigation was significantly correlated	- Sample wasn't randomized - It wasn't possible to know if participants responded to the survey several times - A power analysis on the sample size was not performed - Authors didn't use standardized questionnaires

					to the unpleasant emotional states of nervousness, fear and restlessness, whereas those who reported feeling strong and able to handle the situation experienced a lower loss of control in their web navigation. These correlations may suggest that these online behaviors may act as modulators of unpleasant emotional states."	
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Results

Study Characteristics

Of the nine selected studies, two were published in 2020 (Frisone et al., 2020; Martinotti et al., 2020), four were published in 2021 (Donati et al., 2021; Lugo et al., 2021; Salerno & Pallanti, 2021; Zamboni et al., 2021), and three in 2022 (Cataldo et al., 2022; Donati et al., 2022; Lupo et al., 2022). All were original articles from Italy.

Methodology of the Studies

All nine studies had a cross-sectional quantitative or mixed design. Five used an online survey (Frisone et al., 2020; Lugo et al., 2021; Lupo et al., 2022; Salerno & Pallanti, 2021; Zamboni et al., 2021), three of them were conducted using a phone survey (Cataldo et al., 2022; Donati et al., 2021, 2022) and one used both online and paper version of a survey (Martinotti et al., 2020).

Type of Gambling and/or Other Problems Analysed

Six studies were about gambling in general, not focusing on any specific type (Cataldo et al., 2022; Donati et al., 2021, 2022; Frisone et al., 2020; Lugo et al., 2021; Salerno & Pallanti, 2021). One concentrated both on substance use disorders (SUDs) and behavioural addictions, which included gambling (Martinotti et al., 2020). Another one studied gambling and internet addiction (Lupo et al., 2022). Finally, one focused on online shopping, online pornography, and online gambling (Zamboni et al., 2021).

Populations Studied

Four of the studies analysed the general Italian population (Frisone et al., 2020; Lugo et al., 2021; Salerno & Pallanti, 2021; Zamboni et al., 2021). Another four focused on pathological gamblers: one with problem gamblers undergoing treatment (Donati et al., 2021), one with patients receiving in residential programmes (Martinotti et al., 2020), one with

pathological gamblers outpatients of the mental health services (Cataldo et al., 2022), and one focused on affected family members of disordered gamblers (Donati et al., 2022). The last one of the nine studies was carried out with a population of nurses (Lupo et al., 2022). Only one study involved non-adults, including those aged 16 or above (Frisone et al., 2020).

The Impact of COVID-19 on Gambling

The following paragraphs will present an overview of the main results presented by the nine articles, sorting the information into six key categories: (1) prevalence of gambling; (2) transition to online gambling; (3) sample characteristics and eventual association with gambling; (4) comorbidities and other mental health issues; (5) risk factors and predictors of gambling; and (6) craving.

Prevalence of Gambling

Even though only two studies were published in 2020, eight of the nine were conducted during the first strong lockdown of Italy, which took place between March 9 and May 18 of 2020. The only one that started during the lockdown and finished in November 2020 was Frisone et al. (2020). The researchers investigated whether the closure of gambling venues during the lockdown had any impact on gambling habits.

Two of the studies that focused on pathological gamblers (Donati et al., 2021, 2022) showed a decrease in overall gambling activities, while in another, most respondents reported no changes in gambling frequency (Cataldo et al., 2022). Martinotti et al. (2020) did not have the objective to track the variation in gambling and SUDs, and so were not able to give insight into this.

Regarding the general Italian population, the study by Frisone et al. (2020) did not investigate changes in gambling behaviour. The other three studies (Lugo et al., 2021; Salerno & Pallanti, 2021; Zamboni et al., 2021) showed a slight emergence of new gamblers, that is, people who had never gambled before the lockdown. Despite this, the data presented by Lugo et al. (2021) showed an overall decrease in gambling behaviours, even though time spent gambling increased among gamblers.

Lastly, while the study by Lupo et al. (2022) did not differentiate between old and new gamblers, it showed that slightly more than 10% of the nurses participating manifested severe gambling addiction, and almost 10% more showed mild or moderate gambling addiction.

Transition to Online Gambling

Some researchers decided to investigate whether the restrictions on land-based gambling may have influenced online gambling frequency. Four studies differentiated between land-based gambling and online gambling or took into consideration a possible transition to online gambling. Lugo et al. (2021) showed an overall decrease in online gambling, while Cataldo et al. (2022) and Zamboni et al. (2021) did not analyse the variation but observed

that only a negligible percentage of their sample reported taking part in online gambling activities. Donati et al. (2021) did not observe any shift towards online gambling.

Sample Characteristics and Eventual Association with Gambling

All nine studies took into consideration a plethora of characteristics, starting with the participants' basic sociodemographic information, such as their age, education, and occupation, and continuing with their quality of life and general emotional state. Some of them also investigated the impact of COVID-19 and the associated restrictions on the respondents. Specific mental health issues (e.g., depression) were investigated and will be discussed later.

Most of the pathological gamblers in the studies' samples were male, between 40 and 50 years of age, and employed (Cataldo et al., 2022; Donati et al., 2021, 2022; Martinotti et al., 2020). Regarding their emotional state, Donati et al. (2021) showed that the lockdown seemed to improve problem gamblers' quality of life, as 50% of the participants reported a positive state and only 24% a negative emotional state. Furthermore, they always found that less gambling was associated with a good family environment and a positive emotional state. Donati et al. (2022) presented similar results, with most of the sample reporting a positive state - even if their family members reflected a comparatively more negative emotional state. In conflict with those results, Martinotti et al. (2020) found that a high percentage of their sample reported a reduced quality of life during the lockdown. Donati et al. (2021) also stated that the pandemic had elicited many negative emotions, but in general they found a favourable attitude towards the lockdown countermeasures taken by the government from their participants.

Concerning the four studies of the general population, Frisone et al. (2020), Salerno and Pallanti (2021), and Zamboni et al. (2021) had a sample with a higher percentage of women and a mean age that ranged from 33 to 43. Frisone et al. (2020) found problem gambling to be positively correlated with being male and negatively correlated with years of education (lower). Furthermore, two multivariate linear regressions manifested statistically significant relationships between problem gambling and the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987; positive), age (positive), gender (higher values for men), and years of study (negative). Salerno and Pallanti (2021) found that while chronic gamblers were mainly unemployed, business owners, or employed in administrative support or the production sector, new gamblers were mainly business owners and unemployed. New and chronic gamblers were also significantly older than non-gamblers. In the study by Zamboni et al. (2021), 20% of the subjects were without a job (students, unemployed, or retired), almost 70% reported experiencing distressing emotions during the lockdown, and 8.4% of them enacted various coping behaviours (including online gambling). Lugo et al. (2021) found less distinction between men and women (almost 50:50), and

both the age groups and the educational levels were more evenly divided. Their data showed that younger people were generally more likely to show worsening gambling habits.

The sample of nurses surveyed by Lupo et al. (2022) had a predominance of women of wide-ranging ages from 20 to over 60. The SOGS scores showed a prevalence of gamblers (either mild, moderate, or severe) within the male group; further, nurses with less professional experience showed statistically stronger gambling habits.

Comorbidities and other mental health issues

As mentioned earlier, many studies also investigated the relationship between specific mental health issues and gambling during lockdown. Three of the studies focusing on gamblers explored comorbidities and mental health indicators.

Donati et al. (2021) analysed changes in other potentially addictive behaviours, and found that problem gamblers watched more TV than before the lockdown, while 23% reported drinking less alcohol. They also found that problem gambling symptoms were negatively related to the frequency of alcohol use, and positively correlated with depressive feelings, playing videogames, and knowing people who died from COVID-19 (Donati et al., 2021). Martinotti et al. (2020) used psychometric measures for irritability, anxiety, somatic symptoms, post-traumatic stress, and pain, and found that the gamblers in their sample usually indicated minimal to mild states for each of those scales. Almost half of the gamblers sampled by Cataldo et al. (2022) reported having been diagnosed with a mental disorder: mainly mood disorders but also addiction, psychotic disorders, eating disorders, or personality disorders. In addition, half of the participants reported experiencing increased irritability and, in lesser percentages, increased anxiety, mood fluctuations, sleep disorders, alterations of thought, and eating disorders. Alcohol consumption varied too, both increasing and decreasing for different respondents. Lastly, a positive relationship was observed between depression and both reported gambling severity and increases in gambling.

Two of the studies focusing on the general population turned the spotlight on mental health indicators. Salerno and Pallanti (2021) highlighted that compared with respondents who had never gambled, both new gamblers and chronic gamblers reported higher levels of anxiety, depression, somatization, hostility, and distress during the lockdown. Lugo et al. (2021) showed that smokers, e-cigarette users, heated tobacco product (HTP) users, cannabis users, and subjects at alcohol risk manifested an increase in gambling behaviours during the lockdown and compared with the pre-lockdown period. For cannabis users specifically, there was a relationship between starting gambling and addictive behaviours (Lugo et al., 2021).

Risk factors and predictors of gambling

Only three studies directly assessed the risk factors and predictors of gambling. Cataldo et al. (2020) did not find any variable in their study to be a significant predictor of gambling severity. Frisone et al. (2022) showed that two predictors of gambling are non-planning impulsiveness and attentional impulsiveness. Lupo et al. (2022) instead found that social discomfort, fun, the desire for strong emotions, and loneliness were found to be risk factors for gambling addiction. Other lesser predominant risk factors were economic difficulties, challenging fate, time availability, and availability of cash (Lupo et al., 2022).

Craving

Three articles considered craving resulting from abstinence in their samples, and all of those were focused on gamblers. Donati et al. (2021) reported an association between higher gambling craving and higher gambling severity and higher frequency of gambling behaviour, and in general the authors observed low craving among the sample. Similar results were found by Martinotti et al. (2020): the craving levels of the patients in their study were lower than what is typical in Italian patients. They also identified a negative correlation between reported craving and perceived life quality, as well as a positive correlation between reported craving and anxiety, traumatic stress, and depressive symptoms. Finally, about 60% of the sample of Cataldo et al. (2020) did not report an increase in craving during the lockdown.

Discussion

The need to prevent the spread of COVID-19 in Italy in March 2020 led to the closure of slot arcades, betting halls and bingo halls, blocked slot machines in bars, and subsequently to the suspension of all gambling in tobacco shops, leaving only lottery scratch cards and online gambling as available options until June 2020 (DPCM, 2020). All the articles in this review focused on this first wave of land-based gambling lockdown, and most found a decrease in gambling levels during this period.

The urge to gamble is a physiological, psychological, and/or emotional motivational state, often influenced by not only internal but also external triggers (Raylu & Oei, 2004). Overall, the general limitation of daily activities due to the lockdown reduced the impact of external triggers, such as encountering places, environments, social groups, and people that may remind individuals of gambling. This confirmed the beneficial effects of the absence of gambling proposals and opportunities and the negative effects of gambling-related triggers and instigation cues for the urge to gamble. The compulsory abstinence from gambling enforced by the lockdown enabled many disordered gamblers undergoing treatment to significantly improve their quality of life.

An increase in emotional distress is also often considered to be a trigger for problem gambling (Oksanen et al., 2018; Vuorinen et al., 2021). Amerio et al. (2021) confirmed the presence of mental health consequences

in the general Italian population during the lockdown for COVID-19, finding an increase in the prevalence of depression, anxiety, and insomnia and worsening quality of life. Fear, stress, and worry were strongly evoked by the pandemic, and a significant proportion of the samples in the reviewed studies experienced irritability, mood fluctuation, and anxiety, but the absence of gambling opportunities seemed to mitigate these feelings.

A lack of craving for gambling during this period has also been reported in multiple studies. Alessi et al.'s (2022) results even showed an unexpected reduction in craving in the majority of disordered gamblers receiving treatment during the COVID-19 pandemic. They also hypothesised that the lack of gambling availability and/or reduced social pressure on a usually excluded and stigmatised subject could produce this effect. Remarkably, most of the studies considered showed that their samples remained abstinent from gambling during the lockdown and only in rare cases did a small increase in gambling habits occur (Cataldo et al., 2022).

In the light of availability theory, the absence of craving could be linked to the absence of environmental cues. Previous studies (e.g., Kato & Goto, 2018; Williams et al., 2012) have consistently shown the role of gambling availability as a determinant of gambling behaviour. According to this theoretical framework, the greater the availability of both geographic gambling accessibility (e.g., Moore et al., 2011) and, even more, *perceived* gambling availability (e.g., Ofori Dei et al., 2020-), the greater the gambling use and related problems.

Further, the reviewed articles did not find a switch from land-based to online gambling in most cases. This result is particularly interesting considering that, during the lockdown, numerous online gambling societies around the world announced record numbers of people subscribing and gambling. Several explanations for this are possible, depending on whether one focuses on clinically disordered gamblers undergoing treatment or the entire population of online gambling customers (Donati et al., 2021). For disordered gamblers receiving treatment, online gambling may not have been a feasible substitute for their preferred form of gambling because they may have lacked technological skills, and family control may have had a greater influence at this time (Avanzi et al., 2020). Moreover, they might have benefitted from not being triggered by online gambling advertising, which was banned in Italy in 2019 (Law no 96, 2018). However, for the general population, the online gambling figures in Italy indicate a substantial increase in revenues, without reporting whether this is due to the same regular gamblers investing more money during the lockdown or whether there has been an increase in the number of clients or both (Donati et al., 2021). Anyway, regardless of the lockdown, the general trend in online gambling revenue in Italy is steadily increasing (ADM, 2021).

Furthermore, most gamblers in these studies showed no tendency to use lottery scratch cards as a substitute either. Therefore, the environmental

influence plays an important role in relapse and a crucial role in enhancing the effects of gambling on treatment and coping with stressful situations.

Only one study (Donati et al., 2022) analysed the psychological state of affected family members of disordered (AFMs) gamblers during the pandemic in Italy. Although the AFMs reported a general cessation of their relative's gambling behaviour and an overall sense of relief at the end of the gambling, accompanied by the perception of good family relationships, the AFMs still felt tired, worried, and apprehensive and perceived more fear, stress, and anxiety when thinking about the reopening of gambling opportunities at the end of the lockdown. Indeed, many disturbed gamblers, and especially their families, were aware that subsequent exposure to gambling after the lockdown would put them at risk of relapse.

The scientific community of socio-health professionals is increasingly concerned about the harmful consequences of gambling for individuals and public health, but no consensus on effective policies and interventions to address this have yet been reached. One thing most agree on, however, is that reducing the supply of gambling would be a crucial element for any prevention and harm reduction strategy (Velasco et al., 2021). In their umbrella review of empirical evidence, they found that reducing the supply of gambling is an effective strategy both for the general population and for risky or problematic gamblers. Regan et al. (2022), focusing on policies and interventions, sought those measures that experts perceived to be more effective and that could be implemented successfully. For land-based gambling, these experts reached consensus that one of the most effective measures, applicable to land-based gambling, would be banning all gambling in venues where young or vulnerable people are present (accessibility domain) and restricting new operating licences through a cumulative effect (availability domain). Following these recommendations, if we consider disordered gamblers as vulnerable subjects and their high prevalence in gambling venues, none should easily be allowed to remain open. The closure of gambling venues that occurred during the lockdown in Italy can be seen as an example of how effective this strict prohibition measure could be when applied to the most vulnerable gamblers.

Kalke et al. (2022) underlined that these temporary and brief closures of gambling venues presented an opportunity for gamblers to reflect on, reduce, or stop their gambling. It may be worth considering the implementation of such temporary closures as a preventive measure in the future: this should be thoroughly analysed in additional evaluation studies.

Migliaccio and Di Stazio (2021) noticed that the pandemic of course had a devastating effect on gambling enterprises due to the long-term closure of arcades, and they highlighted that this may also have damaged public finances, considering the lower revenue from taxes and fees. Nevertheless, these authors also stated that the serious social risks due to possible deviance and pathology should orient public policies towards this sector; even though it supplements the national gross domestic product

(GDP), it still generates serious social pathologies and general impoverishment.

Limitations

The samples analysed by the studies considered were quite varied and heterogeneous, including gamblers in the general population or in specific categories like nurses, pathological gamblers, and pathological gamblers undergoing treatment.

Furthermore, our final sample was small, so the results might appear quite contradictory and inconclusive (e.g., the prevalence of gambling estimates during the first lockdown differ greatly across studies). Nonetheless, due to the distinct populations studied and different methodologies used to investigate them (e.g., studies on the general population that usually are characterized by a larger sample, since they are often more focused on epidemiological purposes, while those on pathological gamblers in treatment or their family members have smaller but still adequate samples) we thought that all the researches taken into consideration were credible in terms of their findings.

In addition, during the review of the nine articles chosen, the presence of some inconsistencies in terminology was noted. These inconsistencies made it more difficult to compare samples and results. Three themes stood out in particular, which would require an unequivocal consensus of the scientific community on the shared definition of the constructs associated with each of them: “disordered gamblers,” “quality of life,” and “comorbidities and health indicators.”

Regarding the definition of “disordered gamblers,” authors referred to their sample in at least three different ways: “pathological gamblers” (Cataldo et al., 2022), “problem gamblers under treatment” (Donati et al., 2021), and “disordered gamblers” (Donati et al., 2022). The extent to which those terms are interchangeable is unclear.

Regarding “quality of life,” two linked issues must be addressed. First, the term was always based on a different definition in the studies, if one was provided at all. Thus, it was not always clear which criteria were used to define “quality of life” in a particular study. Second, quality of life was mainly investigated using generic scales such as the Visual Aid Scale (VAS) used by Lugo et al. (2021) and Martinotti et al. (2020). This gives rise to possible heterogeneous constructs with consequently incomparable results of the studies of how gambling damages the quality of life of gamblers and their families. Using a validated univocal scale to measure quality of life would be necessary, considering the noxious effect of disordered gambling on people’s lives. Regarding this topic, research is striving to update the Value of a Life Year (VOLY, the valuation of risks to life and health: the monetary value of a life year, Chilton et al., 2020) and the Willingness To Pay for a Quality Adjusted Life-Year (WTP-QALY, a unit of measure used in the utility cost analysis that combines the duration

of life with its quality; Kholer, 2014; Prieto & Sacristan, 2003; Testa et al., 1996).

In addition, researchers such as Browne et al. (2021) have recommended building future work on the considerable psychometric evidence accumulated for the feasibility of direct elicitation of harmful consequences (using their Short Gambling Harms Screen and related instruments). They also advocated grounding harms measures with respect to scalar changes to public health utility metrics. According to these authors, such an approach is particularly desirable to avoid misleading pseudo-clinical categorisations, provide accurate population-level summaries of where the burden of harm is carried, and serve to integrate gambling research with the broader field of public health. Further, the studies that we reviewed showed similar inconsistency when analysing “comorbidities and mental health indicators.” In fact, the issues investigated varied not only in extent and typologies but also in the way in which they were investigated, making comparisons difficult when using results obtained with different instruments and scales.

Another limitation is that, as pointed out by some authors, follow-up studies and studies on the second lockdown (November 2020 to June 2021) are lacking. In fact, it should still be noted that the available studies are all limited to a specific period: from March 2020 to June 2020. It is crucial to have news on the second lockdown and on what happened in the following period, especially the long-term effects after the subsequent reopening of all land-based gambling from July 2021. The early months of the pandemic were characterised by fear and uncertainty, further limiting individual movement and activity, and this could have had an additional effect to reduced gambling behaviour, making the long-term effects more important to study.

Finally, all the above considerations are applicable exclusively to the Italian context: closures elsewhere may have had different outcomes. However, our review highlights that when comparing the results of different studies, different policies that are more or less restrictive to land-based access must be considered by researchers as a fundamental independent variable when they aim to compare gambling behaviour during the lockdown periods in countries with various levels of restriction.

Conclusions

Some of the studies reviewed pose interesting questions in terms of environmental prevention and structural reduction of gambling-related harm. A substantial decline in the number of gambling opportunities, as happened during the pandemic in Italy, should be considered justified from a public health research point of view. Public policies should therefore view any form of quantitative restriction or strict limitation of the gambling supply as a component of gambling regulation to protect gamblers, especially those belonging to vulnerable categories, such as minors, disturbed gamblers, and psychiatric patients.

The brief and unintentional environmental prevention due to the COVID-19 pandemic in Italy has shown us how effective it could be if they were long lasting with regard to gambling venues, and suggests that measures to limit gambling's accessibility are crucial in curbing its economic, psychological, relational and social harms to the population.

Though the pandemic is still active today, restrictive measures are no longer enforced in Italy and in many other places in the world, so future research on this issue is needed. Nevertheless, it is already possible to take the results obtained into serious consideration to integrate gambling research with the broader field of public health and the promotion of well-being.

Note 1: The first Italian cases were confirmed on January 30, 2020.

Declaration of conflict of interest

The authors declare that they have no conflict of interest.

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All three authors designed the study and developed the search strategy, participated in the study selection and data extraction, and cooperated in drafting, reading, and approving the final manuscript.

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