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Gambling and internet addiction: a pilot study among a Population of Italian Healthcare

Gambling and Internet Addition in a Healthcare Group

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Abstract

Aim Measuring the phenomenon of gambling and Internet addiction, with analysis of attitudes and psychophysical consequences among nurses working in different care settings.

Methods An observational, cross sectional, multicenter study was conducted from April to September 2020. Participants' socio-demographic information, the "Internet Addiction Test" (IAT) scale, and the "South Oaks Gambling Screen" (SOGS) were collected in order to assess the overuse of and whether an individual has a problematic relationship with gambling, respectively.

Results 502 nurses were enrolled in the study. Significant correlations were found (p < .001) between the IAT score and gender, number of years of work experience, job role, educational qualification; and between the SOGS and gender, number of years of work experience, job role and regions of Italy.

Conclusions 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.

Keywords Gambling · Internet addiction · Internet addiction test · South Oaks Gambling screen

Introduction

The subject of addictions, generally identified with the consumption of psychoactive substances, has acquired different meanings in recent years. The term "new addiction" refers to a wide range of *dysfunctional behaviors* in which the object of addiction is not a substance,

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but a lawful and socially accepted behavior or activity. Specifically, "addiction" represents the behavioral dimension of addiction, the compulsive search for an object or the compulsive repetition of a specific behavior, without which existence loses its meaning (American Psychiatric Association, 2014). Among the *New Addictions*, gambling, sex, work, compulsive shopping, and Internet overuse (Becoña et al., 1996) have taken on considerable importance over the years. The COVID-19 pandemic has undoubtedly produced an enormous acceleration of these addictions. These are linked to electronic technologies with a very rapid development of social platforms for remote meetings, including distance learning, the disproportionate expansion of e-commerce and home-banking, the massive introduction of smart working and even tele-medicine (Vitale et al., 2020). Internet Addiction, proposed almost as a joke by Ivan Goldberg (Goldberg, 1995) taking as a model "pathological gambling" and enjoying considerable success in the scientific community (Cinti, 2004), has not yet found a shared definition. To date, despite the increase in the phenomenon there is no official classification that allows to frame such dysfunctional conduct in precise diagnostic categories (Caretti & La Barbera, 2005). Among the very first theories regarding the course of the Internet addiction syndrome, in 1998 the Italian psychiatrist Cantelmi (Cantelmi & Talli, 2007) defined the first phase of the pathology as "toxicophilia", in which the subject enters the "lurker" phase, without ever exposing him/herself or interacting directly. In this "exploratory" phase, the subject is not yet an expert user of the net, even if he/she is attracted by it. In the second phase, defined by Cantelmi as "toxicomania", having acquired greater competence in the use of the net, the subject progressively begins to increase the number of hours he/she spends connected to it and to participate more and more actively in discussion sites with several users. In the most acute phase of the addiction, the subject has constructed a virtual alter ego (avatar) with which he or she interacts with other users within role-playing games set in a virtual reality. The person who develops an addiction to the Internet progressively loses interest in his or her real life and relationships, with serious impairment of the working and emotional spheres. Online relationships become more important than real ones. In addition to Internet addiction, among the new addictions, or addiction syndromes "without drugs" (Turan et al., 2020), characterized by maladaptive attitudes recurrent and persistent symptomatic, we find Gambling (defined in the literature by the term "gambling") and the resulting disorder of Pathological Gambling (GAP). Gambling disorder is defined - in the latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) (American Psychiatric Association, 2014)- as persistent or recurrent problem gambling-related behavior that leads to clinically significant distress or impairment. This clinical entity appeared for the first time in 1980 in the third edition of the Diagnostic and Statistical Manual of Mental Disorders III (Pichot, 1983) where it is named pathological gambling and classified as an impulse control disorder; the diagnostic criteria were all centered on the damage caused by the inability to resist the impulse to gamble. In the evolution of studies, on this addiction, the DSM IV-TR (American Psychiatric Association, 1980) introduced - in the light of scientific evidence − 10 diagnostic criteria for the diagnosis, the presence of legal problems and the use of gambling as a means of mood regulation and escape from reality. The simultaneous presence in an individual, during the previous 12 months from observation, of at least five of these criteria allowed until 2013 to formulate a confirmatory diagnosis of pathological gambling. In 2013, the name pathological gambling changed to gambling disorder and placed in the category of substance-related disorders and addiction disorders. In Italy, the sector of legalized gambling appears to be

in constant expansion. In fact, the diffusion of online gaming and the growing penetration among the population of the various telematics applications always offer new market opportunities, hand in hand with technological evolution (Musetti et al., 2016; Sánchez-Carbonell et al., 2008). The main effect of this expansion process has been, above all, the transformation of gambling - from a partly illegal activity and limited to a small number of products - into a real mass phenomenon, socially accepted and encouraged. A systematic review on empirical studies conducted worldwide between 2000 and 2015 highlighted that surveys of gambling behavior have not yet been conducted in many countries (Calado & Griffiths, 2016). The studies in the literature shed light on what is now considered a serious public health problem, especially because of the consequences on the individual involved, their family members, also as a cause of serious financial problems and antisocial disorders (American Psychiatric Association, 1980; Dowling et al., 2015). The theme of addiction is currently the subject of deep interest; we wonder about the mechanisms that transform what can be a common habit into a slavery, which originates from the continuous pursuit of pleasure, provided by the object of addiction. The question arises, also, what happens from the encounter with that particular object or behavior to make it become the focus of the individual's life, to the point of estranging it from any other activity (Dowling et al., 2015; Lupo et al., 2020). Therefore, attention is focused on how the birth of the Internet and the introduction of new technologies have revolutionized today's society, changing the work settings - including health - as evidenced by studies conducted in Italy among a population of nurses (Lupo et al., 2020; Pucciarelli et al., 2019). Although several studies have been carried out with regard to gambling addiction to assess the behaviors and problems associated with it among the adult population (Ladouceur et al., 2005), in the literature, to date, there are no studies that allow to assess the pathological gambling addiction and Internet addiction among Italian nurses. Specifically, subsequent to evaluating these addictions among university students (Blinn-Pike et al., 2006) and nursing students (Cicolini et al., 2018). To the best of our knowledge, no evidence is available regarding the correlation between gambling - and pathological gambling addiction - and Internet addiction on certain categories of subjects, such as professional Nurses.

Purpose of the study

The purpose of this study is to assess the existence and extent of the phenomenon of gambling and Internet addiction, with particular attention to any statistical associations between the two phenomena according to socio-demographic characteristics. In addition, the present research explained both the frequencies of risk factors and sources of gambling support associated with the phenomenon of gambling and Internet addiction.

Materials and methods

Study design

The sample that joined the survey is represented by 502 Nursing Professionals. Observational, cross sectional, multicenter study was conducted from April to September 2020.

Inclusion and exclusion criteria

All nurses belonging to the nursing profession orders who had communicated permission to participate in the study. Who were on the mailing list of each provincial order were recruited. All nurses who voluntarily agreed to participate in the study, including nursing coordinators and managers, working in both the public and private sectors, were included. All nursing professionals awaiting their first employment were excluded.

Study procedures and collection tools

The study, conducted from April to September 2020, was conducted through the online dissemination of a questionnaire circulated by means of a link to all the Presidents of the Provincial Orders of Nursing Professions nationwide (n = 102). All Presidents of the Orders of the Nursing Professions distributed throughout the country divided into four geographical areas were then contacted: Northwest Italy (Liguria, Lombardy, Piedmont), Northeast Italy (Emilia-Romagna, Friuli-Venezia Giulia, Trentino-Alto Adige, Veneto), Central Italy (Lazio, Marche, Tuscany) and Southern Italy (Abruzzo, Basilicata, Calabria, Campania, Molise, Puglia, Sicily, Sardinia). The Orders of Nursing Professions in the provinces of Genoa, Lecce, Treviso, Gorizia, Nuoro, Varese, Florence, Trapani, Messina, Pavia and Taranto joined the study. An e-mail was sent to all provincial order presidents introducing the study and formally requesting participation in the survey. After obtaining permission from the presidents, each nurse belonging to the respective order was sent an e-mail containing a brief presentation of the survey and the link to access the online questionnaire. The methods of data collection and analysis designed to ensure the anonymity of each participant. Each nurse was asked to complete the questionnaire in its entirety, completely anonymously. It was strongly recommended by the Orders participating in the study that the questionnaire be filled out only once in order to avoid selection bias and not collect redundant data. The questionnaire was always completed in the same order by participants and the mode of answering obligated participants to answer all questions.

The questionnaire

The administered instrument was divided into four main sections. In the first section, socio-demographic information was collected, such as gender; age (divided into ranges of five years each from a minimum of 0–10 years to a maximum of more than 61 years); position held (whether nurse, nursing coordinator, nursing manager); region of belonging (whether responding from a Northern, Central or Southern Italian region); care setting in which the nurse worked (subdivided as follows: surgical area, critical area, managerial area, maternal-child area, medical-geriatric area, multi-specialist medical area, territorial area, prevention and safety area, service area); educational qualification (regional diploma, university diploma, bachelor's degree, master's degree, PhD); years of work experience (divided into ranges of five years each from a minimum of 0–5 years to a maximum of more than 30 years).

In the second part of the questionnaire, it was investigated how often certain risk factors could be interpreted by the respondents as potential in the development of the pathology of gambling. For each proposed risk factor, the respondent had to answer with a 5-level Likert

scale (never, rarely, sometimes, often, and always). The proposed potential risk factors were economic difficulties; desire for strong emotions; social unease; challenge fate; loneliness; time availability; availability of funds; fun.

In the third part of the questionnaire, we wanted to investigate what were the sources of support for gambling recognized by the respondents, reporting them with the same frequency as the risk factors. Specifically, the sources of support for gambling proposed were colleagues; friends; banks; psychologist; health care facilities; family; self-help groups; voluntary associations.

The fourth section consists of the Italian version of two scales tested for validity and reliability: the South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987) and the Internet Addiction Test (IAT) Scale. (K. S. Young 1998).

In the fourth section of the questionnaire, the "Internet Addiction Test" (IAT) scale was administered, which assessed symptoms and excessive use of the Internet (Egloff & Schmukle, 2002). Specifically, the IAT (Young, 1998) was included in a survey form on life habits. For each patient a form was filled in, consisting of both multiple and open-ended answers, designed to collect socio- demographic information and psychopathological history. The IAT is a self- completed test composed of 20 items; each item is evaluated through a Likert scale that varies from "never" to "always" that correspond to a score from 1 to 5. The test includes six subscales that allow to investigate the six psychopathological dimensions of IAD: "impairment of social-relational life" (items 4,5,9,13,16,18); "impairment of personal quality of life" (items 2,12,14,19,20); "compensatory internet use" (items 7,11,15); "impairment of performance in work/school" (items 6,8); "impairment in control of one's own time" (items 1,17); "excitatory internet use (item 3,10). A subject is considered to have a pathological use of the Internet with a score ≥ 40 and with a score > 60 is referred to as severe IAD.

Reliability and validity

The SOGS consists of 20 items that investigate several aspects that allow for a diagnosis of GAP, for example type and frequency of gambling, difficulty in gambling in a controlled manner, awareness about problem, means used to obtain money to gamble and return to gambling to recover lost money and applying for loans, lies about gambling activities, and estrangement from work. In addition, the SOGS Scale provides insight into the gambler's relationship with his or her environment, specifying whether family members have already criticized his or her gambling habits, or whether the management of his or her personal finances or family budget arouses conflict. Whether the player's family members have or have themselves had a gambling problem is also noted. The maximum score provided by the Scale is 20 points. According to Lesieur & Blume (Lesieur & Blume, 1987) to distinguish between pathological gambling and no gambling problem, the best cut-off is a SOGS score ≥ 5. According to some authors, this cut-off is too low for clinical patients (Tang et al., 2010), while it retains its validity for research and population studies (Donatella Marazziti et al., 2014). On the other hand, regarding the stratification of intermediate categories between GAP (SOGS ≥ 5) and subjects without any gambling problem (SOGS $= 0$), there are several in the literature; some authors distinguish two other intermediate categories: subjects "at risk" (those with a SOGS score $= 1–2$) and subjects "with gambling problems" (SOGS $= 3–4$). Other recent studies, however, drawing on Lesieur & Blume's original strati-

fication (Lesieur & Blume, 1987), distinguish only one intermediate category, defined as "with some gaming problems".

The South Oaks Gambling Screen (SOGS) is one of the most widely used instruments to assess whether an individual has a problematic relationship with gambling. It is a self-administered test, based on 20 items and allows for more complete data than other screening tests (Lesieur & Blume, 1987). Three dimensions were identified: "withdrawal and social problems", "time management and performance", and "reality replacement". The response set is a 5-point Likert scale, including "never", "rarely", "sometimes", "often", and "always". The score can be between 20 and 100; scores of 20 to 49 indicate normal Internet use; scores of 50 to 79 low level of addiction; scores of 80 to 100 severe levels of addiction. Generally used in epidemiological and clinical studies, it allows to know in detail the habits of the respondents. It provides information on the type of gambling preferred, the frequency of gambling activities, the difficulty to gamble in a controlled way, the awareness of one's gambling problem, the means used to obtain money to gamble, going back to gambling to try to recover lost money, lying about gambling activities, gambling more than the amount initially planned, leaving work or school, borrowing money to gamble, loans not repaid and the relationship of the player with his environment.

The maximum value that can be obtained is 20 points. A value of 3 or 4 points indicates potential difficulties with the game, while those who obtain a level of 5 points or more have a manifest gambling problem. Thus, a score that reaches or exceeds 9 would testify to the presence of a serious problem.

The IAT was used (Young, 2016) consists of 20 items which assess the psychopathological risk related to the use of internet, through the evaluation of the repercussions in the work, social and family environment. In particular, three dimensions have been identified as assessed by the IAT: withdrawal - social problems, time management - performance and reality substitution.

Despite in the current literature no generally accepted standardized tool is available to measure Internet over usage or Internet addiction, the IAT score seemed to have good reliability and validity characteristics and it was recommended for its reproducibility (Widyanto & McMurran, 2004).

Statistical analysis

Descriptive analyses were conducted for all qualitative and quantitative variables by using Statistical Package for Social Science (SPSS) Software version 20. Continuous variables were summarized by mean and standard deviation (SD) and categorical variables by frequencies and percentages. Therefore, all collected data were presented in three tables, i.e., the first table collected the soci-demographic characteristics of the sample, the second table collected the frequencies related to the risk factors directly attributable to pathological gambling by the participants, and the third table presented the frequencies related to the sources of support sought by the participants to cope with their gambling problem.

Next, linear regressions were evaluated between:

- socio-demographic characteristics and IAT score.
- socio-demographic characteristics and SOGS score,

all to assess how much participants' socio-demographic characteristics might affect IAT and SOGS scores, respectively. At the same time, a descriptive explanatory analysis was performed for all linear associations found to understand the extent to which the linear associations were significantly relevant to the socio-demographic characteristics of the sample. All p<.05 values were considered statistically significant.

Ethical considerations

The ethical characteristics of the study were set out in the questionnaire presentation and it was designed in accordance with the principles of the Italian data protection authority (DPA). Participation in the study, being free and voluntary, was considered as an expression of consent. It was emphasized that participation was voluntary, and that the participant could refuse participation in the protocol whenever he/she wished. Those who were interested in participating were presented with the possibility of expressing informed consent, as well as the confidentiality and anonymous nature of the information.

Results

Socio-demographic characteristics of the sample

The questionnaire showed good internal validity ($\alpha=0.656$), considering that in addition to the IAT and SOGS questionnaires, information was collected on the motivations and forms of support sought by respondents (Appendix I). In total, the sample that joined the survey consisted of 502 Nursing Professionals with a predominance of the female gender (n=324; 64.5%), holding a Bachelor's Degree (n=341; 67.9%) and working in the medical-geriatric area (n=107; 21.3%). Additional general characteristics of the sample were reported in Table 1.The general characteristics of the sample are shown in Table 1.

Among the risk factors for gambling addiction, the desire for strong emotions often emerges along with social discomfort (n=45; 9.0%). Loneliness also prevails as a determining factor (n=43; 8.6%). Additional frequencies to the responses received on the frequencies of risk factors found by participants are shown in Table 2.

Table 2 shows the frequencies to the responses received on the frequencies of risk factors found by the participants.

The study results show little help from work colleagues (n=399; 79.5%), family (n=373; 74.3%) and voluntary associations (n=441; 87.8%). Table No. 3 shows the frequencies of sources of gambling support that respondents found in their experience.

Table 3 shows the frequencies of sources of gambling support that respondents encountered in their experience.

Considering the linear associations between socio-demographic characteristics and IAT score (Table 4), statistically significant associations are noted between:

- IAT score and sex (p<.001): male sex records significantly higher values than female sex;
- IAT score and age (p<.001): those over 61 years old record significantly higher levels than the other age groups considered;

Table 1 Socio-demographic characteristics of the sample (n=502)

Socio-demographic characteristics	n (%) [a]; μ±SD [b]
GENDER	324 (64.5) [a]
Female Male	178 (35.5) [a]
AGE	197(39.20%)
Until 30 years	109(21.70%)
31–40 years	113(22.5%)
41-50years	76(15.10%)
51–60 years	7(1.40%)
Over 61 years	
JOB ROLE	453 (90.2) [a]
Nurse	30 (6.0) [a]
Nursing Coordinator Nursing Executive	19 (3.8) [a]
REGIONS	188 (37.5) [a]
North Centre South	86 (17.2) [a]
	228 (45.3) [a]
AREA OF WORK	81 (16.1) [a]
Surgical area	99 (19.7) [a]
Critical area	26 (5.2) [a]
Executive area	22 (4.4) [a]
Maternal-Infantile area	107 (21.3) [a]
Medical-Geriatric area	80 (15.9) [a]
Multi-specialty Medical area	38 (7.6) [a]
Territorial area	37 (7.4) [a]
Prevention and Safety	12 (2.4) [a]
Services	
CERTIFICATE	78 (15.5) [a]
Regional Diploma University Diploma Bachelor's	39 (7.8) [a]
Degree Master's Degree	341 (67.9) [a]
PhD	42 (8.4) [a]
	2 (0.4) [a]
WORK EXPERIENCE (years)	209 (41.6) [a]
01–05	67 (13.3) [a]
06–10	58 (11.6) [a]
11–15	44 (8.8) [a]
16–20	54 (10.8) [a]
21–25	30 (6.0) [a]
26–30	40 (8.0) [a]
Over 30	
IAT score	24.74±21.62 [b]
SOGS levels Absent	398(79.3) [a]
Slight Moderate	13(2.6) [a]
Severe	31(6.2) [a]
	60(12) [a]

- IAT score and job role (p<.001): those in a management role report significantly higher levels than others;
- IAT score and work experience (p<.001): those reporting 16 to 20 years of work experience report higher levels than others.

Discussion

The study, conducted among professional nurses throughout Italy, aimed to capture the phenomenon of Internet addiction and gambling related to the socio-demographic variables

Table 2 Frequency of risk factors recorded for gambling (n=502)

Risk factors gambling addiction/frequency	Never n (%)	Rarely n (%)	Every now and then n (%)	Often n (%)	Always n (%)
Economic difficulties	422(84.1)	7(1.4)	38(7.6)	26(5.2)	9(1.8)
Desire for strong emotions	389(77.5)	19(3.8)	27(5.4)	45(9.0)	22(4.4)
Social unease	420(83.7)	19(3.8)	27(5.4)	45(9.0)	22(4.4)
Challenging fate	368(79.1)	30(6.0)	35(7.0)	29(5.8)	11(2.2)
Loneliness	397(73.3)	28(5.6)	29(5.8)	43(8.6)	34(6.8)
Time availability	368(73.3)	39(7.8)	44(8.8)	36(7.2)	15(3.0)
Availability of funds	407(81.1)	14(2.8)	40(8.0)	29(5.8)	12(2.4)
Fun	306(61.0)	44(8.8)	48(9.6)	56(11.2)	48(9.6)

Table 3 Survey of sources of support for gambling (n=502)

Supporting Sources/Frequency	Never n (%)	Rarely n (%)	Every now and then N (%)	Often n (%)	Always n (%)
Colleagues	399 (79.5)	26 (5.2)	24 (4.8)	32 (6.4)	21 (4.2)
Friends	372 (74.1)	31 (6.2)	42 (8.4)	42 (8.4)	15 (3.0)
Banks	430 (85.7)	12 (2.4)	23 (4.6)	25 (5.0)	12 (2.4)
Psychologist	396(78.9)	25(5.0)	16(3.2)	35(7.0)	30(6.0)
Health care facilities	442(88.0)	10(2.0)	7(1.4)	31(6.2)	12(2.4)
Family	373(74.3)	36(7.2)	33(6.6)	43(8.6)	17(3.4)
Self-help groups	443(88.2)	6(1.2)	14(2.8)	27(5.4)	12(2.4)
Voluntary associations	441(87.8)	10(2.0)	10(2.0)	26(5.2)	15(3.0)

collected, as well as to investigate the frequencies related to the risk factors associated with the above-described phenomena and the forms of support consulted by the participants, should they turn. Since the first idea that problematic Internet use could be configured as addiction (Young, 1996), increasing evidence has accumulated on the existence and prevalence of IAD (Ko et al., 2012; Tam & Walter, 2013). The prevalence of IAD to date is between $0.3 - 0.7\%$ in the U.S., in Asia it is significantly higher, around 26.7%, and in Italy it is 0.8% (Kuss et al., 2014), particularly on adolescents there is prevalence of IAD around 5% (Tam & Walter, 2013; Taranto et al., 2015). The sample of the present study, conducted in the first pandemic phase, represented by a population of Nurses, demonstrates through the IAT a mild degree of Internet addiction. The average score obtained regarding Internet addiction is 24.74 ± 21.62 (score 20–100), where 20 indicates no Internet addiction and 100 indicates severe Internet addiction. Years of work experience is significantly associated with Internet addiction ($p < .001^*$), being nurses with years of work experience between 16 and 20 years record a higher IAT score than the others (41.59 ± 25.56), with a higher job role

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Table 4 Linear regression between socio-demographic characteristics and the IAT scores

Socio-demographic characteristics/ IAT scores	μ±s.d.	β	t	p-value
GENDER	18.23±15.95	0.350	9.187	>0.001*
Female	36.59±25.31			
Male				
Age	22.77±16.23	0.616	7.912	>0.001*
Until 30 years	22.24±20.38			
31–40 years	22.96±22.88			
41-50years	33.18±28.23			
51–60 years	56.14±28.63			
Over 61 years				
JOB ROLE	23.27±20.26	−0.168	0.3893	>0.001*
Nurse	29.17±25.32			
Nurse Coordinator	52.63±27.68			
Nursing Executive				
REGIONS	23.40±18.87	−0.003	−0.075	0.940
North	23.62±18.49			
Center	26.40±24.88			
South				
WORKING AREA	24.91±22.22	−0.010	−0.258	−0.796
Surgical area	21.06±19.88			
Critical area	31.23±25.58			
Executive area	22.18±20.82			
Maternal-Infantile area	31.04±24.65			
Medical-Geriatric area	26.62±20.87			
Multi-specialty Medical area	17.10±10.23			
Territorial area	18.34±16.38			
Prevention and Safety Services	19.50±16.31			
CERTIFICATE	15.63±16.05	−0.013	−0.270	0.787
Regional Diploma	35.05±28.13			
University Diploma	24.19±20.01			
Bachelor's Degree	34.09±26.47			
Master's Degree	74.50±3.53			
PhD				
WORK EXPERIENCE	23.02±17.17	−0.682	-8.503	>0.001*
01–05	24.40±21.39			
06–10	33.66±29.14			
11–15	41.59±25.56			
16–20	20.35±22.35			
21–25	19.57±18.49			
26–30	12.60±10.53			
Over 30				

*p<.05 is statistical significant

($p<.001$). This aspect reflects that of a study conducted in Italy, in the first pandemic phase, where significant differences in IAT levels emerge In fact, from the results of this study, the male gender reports significantly higher IAT levels than the female gender ($p<.001$), as also reported among the data presented here. Those with more than six years of experience also reported significantly higher levels of IAT ($p=.031$) than their younger counterparts (Lupo et al., 2022). In addition, the literature points out that in individuals addicted to Internet, psychiatric comorbidities may also occur: among the most frequently associated disorders are neurodevelopmental disorders such as ADHD, (Attention Deficit Hyperactivity Disor-

Table 5 Linear regression between socio-demographic characteristics and the SOGS scores

Socio-demographic characteristics/	SOGS scores n(%)				β	t	p-value
	Absent	**Mild**	**Moderate**	**Severe**			
GENDER	305(60.80%)	3(0.60%)	5(1.00%)	11(2.20%)	0.412	11.014	>0.001*
Female	93(18.50%)	10(2.00%)	26(5.20%)	49(9.80%			
Male							
Age	178(35.50%)	2(0.40%)	2(0.40%)	15(3.00%)	0.511	6.694	>0.001*
Until 30 years	87(17.30%)	2(0.40%)	8(1.60%)	12(2.40%)			
31–40 years	84(16.70%)	8(1.60%)	10(2.00%)	11(2.2%)			
41-50years	47(9.40%)	1(0.20%)	10(2.00%)	18(3.60%)			
51–60 years	2(0.40%)	0(0%)	1(0.20%)	4(0.80%)			
Over 61 years							
JOB ROLE	371(73.90%)	12(2.40%)	24(4.80%)	46(9.20%)	0.184	4.338	>0.001*
Nurse	23(4.60%)	0(0%)	3(0.60%)	4(0.80%)			
Nurse Coordinator	4(0.80%)	1(0.20%)	4(0.80%)	10(2.00%)			
Nursing Executive							
REGIONS	163(32.50%)	1(0.20%)	8(1.60%)	16(3.20%)	0.081	4.338	0.030*
North	81(16.10%)	6(1.20%)	2(0.40%)	8(1.60%)			
Center	154(30.70%)	6(1.20%)	21(4.20%)	36(7.20%)			
South							
WORKING AREA	61(12.20%)	2(0.40%)	8(160%)	10(2.00%)	−0.037	-1.009	0.314
Surgical area	84(16.70%)	1(0.20%)	2(0.40%)	12(2.40%)			
Critical area	19(3.80%)	1(0.20%)	0(0%)	6(1.20%)			
Executive area	17(3.40%)	1(0.20%)	1(0.20%)	3(0.60%)			
Maternal-Infantile area	78(15.50%)	2(0.40%)	10(2.00%)	17(3.40%)			
Medical-Geriatric area	62(12.40%)	0(0%)	8(1.60%)	10(2.00%)			
Multi-specialty Medical area	35(7.00%)	2(0.40%)	1(0.20%)	0(0%)			
Territorial area	31(6.20%)	4(0.80%)	1(0.20%)	1(0.20%)			
Prevention and Safety Services	11(2.20%)	0(0%)	0(0%)	1(0.20%)			
CERTIFICATE	67(13.30%)	0(0%)	8(1.60%)	3(0.60%)	−0.072	-1.540	0.124
Regional Diploma	23(4.60%)	1(0.20%)	5(1.00%)	10(2.00%)			
University Diploma	283(56.40%)	6(1.20%)	14(2.80%)	38(7.60%)			
Bachelor's Degree	25(5.00%)	6(1.20%)	4(0.80%)	7(1.40%)			
Master's Degree	0(0%)	0(0%)	0(0%)	2(0.40%)			
PhD							
WORK EXPERIENCE	189(37.65%)	2(0.40%)	1(0.20%)	17(3.39%)	−0.519	-6.596	>0.001*
01–05	51(10.16%)	2(0.40%)	8(1.60%)	6(1.20%)			
06–10	34(6.77%)	3(0.60%)	7(1.40%)	14(2.79%)			
11–15	17(3.39%)	6(1.20%)	5(1.00%)	16(3.19%)			
16–20	45(8.96%)	0(0%)	5(1.00%)	4(0.80%)			
21–25	24(4.78%)	0(0%)	4(0.80%)	2(0.40%)			
26–30	38(7.57%)	0(0%)	1(0.20%)	1(0.20%)			
Over 30							

*p<.05 is statistical significant

der), depressive and bipolar disorders, anxiety disorders and especially social anxiety, aggression control disorder, obsessive compulsive, borderline, narcissistic, histrionic and avoidant personality disorder, as well as the presence of other addictions (alcohol and other substances) (Bernardi & Pallanti, 2009; Cowlishaw & Kessler, 2016; Ko et al., 2012; Lupo et al., 2020; Pucciarelli et al., 2019) This aspect could lead back to a hypothesis about the existence of etiopathogenetic and psychopathological mechanisms that could foster this

relationship, as well as the presence of physiological alterations similar to substance addictions (Bernardo et al., 2017). Regarding gambling addiction, our study shows a level of severe addiction among professional Nurses (12%; n=60). During the pandemic period, the possibility of gambling was limited to scratch cards and online gambling for about two and a half months, where it was possible to observe the differences between a situation of widespread gambling and that of near-absence on the territory nationwide (Avanzi et al., 2020). Given the socio-demographic data, correlated with the respective addictions, the results of our study assume particular interest in the context of prevention, the condition of which could - if not intervened in a timely manner in light also of further addictions related to the pandemic - degenerate into a pathological addiction. From the studies in the literature, there appears to be a correlation between emotional state and loss of control in web surfing and the development of behaviors such as online gambling: a recent study (Zamboni et al., 2021) brought to light how, during the Covid-19 pandemic, loss of control in web surfing was significant and correlated with the unpleasant emotional states of nervousness, fear and restlessness, while those who reported feeling strong and able to handle the situation experienced less loss of control. The instruments used for data collection (SOGS Scale and IAT) also confirm in our study, their specificity in identifying pathological subjects. The risk factors recorded for gambling in our study include: loneliness n=34 (6.8%), desire to often tempt fate n=29 (5.8%), social discomfort n=22 (4.4%), desire for strong emotions n=22 (4.4%), and economic difficulties n=9 (1.8%), the latter aspect correlating strongly with gambling addiction and assuming an important significance especially in such a difficult period as the pandemic. When gamblers come into contact with gambling-related environmental stimuli, either directly or indirectly (by observing actions or listening to the words of others), a strong urge to gamble may be generated in them. In fact, exposure to gambling-related stimuli acts as a trigger and this aspect determines craving (i.e., the perceived urgent desire to play) (Donati et al., 2021). Gambling addiction, generates symptoms reminiscent of those of a drug addicted person: craving, withdrawal, i.e., the feeling of restlessness associated with physical and psychological symptoms that occurs if one fails to play, and addiction, the need to gradually increase the amount of time devoted to gambling. The player feels an uncontrollable need to play again, and the state of excitement he or she is in at the time is comparable to that produced by taking drugs. As time passes, the pathological gambler, bets larger and larger amounts of money and devotes more and more time to gambling in order to achieve the excitement he needs (Lavanco et al., 2013). Very often, gamblers do not consider themselves gamblers and this can generate negative developmental consequences of gambling behaviors as confirmed by a study conducted among the population, where among the most predictive risk factors for gambling, were present, moderate and severe anxiety and depression, reduced work hours, the use and abuse of cannabis or alcohol, and economic difficulties (Price, 2020). Among the factors, the neurobiological component appears to be very important. In particular, dysfunction would affect the production, release and alteration systems of neurotransmitters, such as serotonin, norepinephrine and dopamine (Serpelloni & Rimondo, 2012). Gambling disorder is a condition that also negatively affects the entire family system, to the point that the relationship with the partner is affected economically, socially, identically, and symbolically, and frequently it is the partner who makes the first call for help. Negative consequences, reported in the literature, generated by the gambling disorder include partner of child abuse (Lesieur, 1978), underage gambling (Shaffer & Hall, 1996), alcohol and other substances abuse issues, suicide and

suicide attempt, which have yet to be explored in the literature. Among the major consequences is suicide risk so much so that there are increasing studies investigating the relationship between suicide risk, including suicidal ideation and suicidal attempts, and gambling behaviors in samples of subjects with different characteristics of gender, age, and varying degrees of involvement and intensity of gambling problems. Afifi and collegues (Afifi et al., 2010), examining a sample consisting of 10,056 Canadian women aged 15 years and older, showed a positive and significant association between problem gamblingα and two common categories of suicide risk, namely suicidal ideation and suicide attempts (Cowlishaw & Kessler, 2016), an aspect that is still too underestimated and underdiagnosed. A further study carried out in England by Cowlishaw and Kessler (Cowlishaw et al., 2012) investigated suicidality in gamblers through interviews conducted with 7,403 individuals over the age of 16. The authors found that about a quarter of problem gamblers reported having made a suicide attempt in their lifetime, while 20% indicated that they had experienced some form of suicidal ideation within the past year (McConaghy et al., 1983). Gambling disorder, which hides several consequences, to date remains underdiagnosed and for various reasons only a small proportion of pathological gamblers seek support, making early detection difficult and thus delaying the implementation of appropriate treatment. In our study, there are many participants who do not seek psychologist n=396 (78.9%), health care facilities n=442 (88.0%), self-help groups n=443 (88.2%) and voluntary associations n=441 (87.8%). Only a small percentage of participants, turn to work colleagues n=21 (4.2%) and family n=17 (3.4%), to seek support. The sources of support, found in the present study, all record statistically significant correlations (p<.001) with both Internet addiction and gambling. The patient's request for help is the first important step in order to begin a pre-course of treatment and rehabilitation, which is why the results of our study assume significant significance. In approaching the treatment and rehabilitation of those affected by such addiction, it is necessary to keep in mind that interventions, in order to be effective, should act on two levels in an integrated manner: the first concerns the cognitive functions, and therefore the mind, in order to be able to better control behavioral disorders; the second concerns the neuro structures and the co-presence of psychiatric pathologies that can sometimes benefit from simultaneous and integrated pharmacological interventions supporting psychological and socio- environmental interventions (Huggett et al., 2019). One of the approaches to the phenomenon that tries to explore the role of the family in the gambler's functioning processes is described by Coletti (Coletti, 2017), who considers on the one hand "the family as victim" and on the other hand "the family as concause" of the phenomenon. In this vein, Lipari and Scardinia (Lipari & Scardina, 2018) describe this as a "traumatic family experience" that generates betrayal and violation of a sacred space such as the intra-family space, where the trauma takes shape with the progressive discovery of gambling behavior, from which a climate of distrust, cyclical experiences of illusions/delusions and uncertainty are generated, leading to anxiety, fear and chronic stress. It is important to take care of the well-being of the individual, who recognizes that he or she is addicted to gambling, but it becomes essential then to also take care of his or her system of belonging (Chebli et al., 2016). The course of treatment, through educational and rehabilitative interventions, always starts from the ascertainment of the problem and the awareness of the person who finds himself entangled in the web of addiction. As is well known, these people accrue awareness of the problem late and very often motivation for behavioral change is little affected by external deterrent factors such as conflict with family members or legal issues related to indebted-

ness. Intervention options aimed at rehabilitation can be multifaceted and must consider cessation of gambling, individual counseling, outpatient treatment (group or individual), and/or residential programs in severe cases, but also management of psychiatric comorbidity, if present, and management of substance dependence. From the therapeutic-rehabilitative point of view, it should be emphasized how the use of new psychotherapeutic-type techniques (Cowlishaw et al., 2012) with the possibility of implementing virtual reality tools (Tárrega et al., 2015) or web-mediated treatments (Chebli et al., 2016), ad the recent development of neuromodulation interventions such as repetitive transcranial magnetic stimulation (rTMS) (Pettorruso et al., 2020) transcranial direct current stimulation (tDCS) (Martinotti et al., 2019) represent useful methods to reduce craving for gaming and increase cognitive control over it. Such interventions allow for improved compliance and adherence to treatment: an element that is not easily addressed in the more general context of addiction issues. The Covid-19 pandemic has generated significant impacts on the mental health of the general population and health professionals, a condition exacerbated by both job uncertainty and changes in the social context, generating a rather worrying scenario, on which action needs to be taken in terms of prevention and monitoring also of the possible harms related to this pathological addiction, as suggested by a study by Kiràly et al. (Király et al., 2020; Lupo et al., 2022). Currently, responses to the problem of gambling are not yet sufficiently delineated and socially satisfactory. Therefore, preventive, rehabilitative and treatment strategies are needed that are based more on psychopathological and neuroscientific knowledge of the disorder (Martinotti et al., 2020). Our study highlights that there is a need to take care of the caregiver. The results of our pilot study, conducted on professional nurses, represent only the tip of the iceberg and could be useful in monitoring this emerging phenomenon with extreme urgency.

Limitations of the study

The results of our study must be considered taking into account some limitations. Participants voluntarily agreed to take part in the study. It could have been participated only by those who have a greater sensitivity to the topic. Other limitations concern the sample size, not having carried out the follow-up of the psychological consequences and not having investigated the long-term effects of the participants in the study and, finally, the choice of the electronic disclosure of the questionnaire that could have determined a reluctance of the participants to declare their addiction for fear and for the wave of shame that could touch both the professional and family spheres.

Conclusions

The pilot study, conducted among Italian nursing professionals, highlighted an emerging social problem and the results may represent only the tip of the iceberg. In addition, to direct future intervention strategies, this study offers further insights into how some possible preventive measures and related therapeutic-rehabilitative actions could be placed. It is worrying how professionals who manifest a condition of pathological dependence do not consider the family, self-help groups and health facilities as possible sources of support, probably due to fear, shame and/or lack of awareness of the problem. Despite the many advances made in

the understanding of the etiopathology and in the validation of effective tools for the clinical management of pathological gambling, many questions remain unresolved.

Future perspectives

It would be appropriate to measure the effects that these dependencies could have on the quality of care and in the family context. It is necessary to involve the nursing professions, families and healthcare facilities, as representative and protective bodies, in order to implement targeted intervention and prevention strategies. Future research should also investigate the possibility of intervening pharmacologically, aspects that to date have been little considered in the literature. It would also be useful to monitor the health status of other health professionals, at risk of gambling and internet addiction, not enrolled in the study.

Declarations

Conflict of interest Each author declares that he/she has no commercial associations (e.g., consulting, stock, holdings, patent/licensing agreements, etc.) that could result in a conflict of interest in relation to the submitted article.

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