



Research article

What game we are playing: the psychosocial context of problem gambling, problem gaming and poor well-being among Italian high school students

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ABSTRACT

Gambling and gaming are not infrequent among adolescents and preventing low-risk youth from becoming at-risk appears to be a priority of public health strategies. Greater scrutiny of the risk and protective factors in the relationships and community of young people appears crucial in steering prevention initiatives adequately.

This study aimed to explore the role of the qualities of relational networks (i.e. family functioning, perceived social and class support), family and peer approval and view of the social environment in predicting problem gambling, problem gaming and overall well-being among adolescents.

High-school students aged 14–18 years (N: 595; female: 68,7%) completed a survey including the target variables. A multivariate multiple regression analysis was performed to examine the role of socio-demographic characteristics and psychosocial predictors on gaming, gambling, and well-being.

Multivariate multiple regressions identify a common core underpinning problem gambling, gaming and poor well-being but also the distinct roles of psychosocial variables: being male, with low parental monitoring, and an anomic view of the social environment all predict problem gambling and gaming, which were also found to be associated. Low social support predicts problem gambling but not problem gaming; poor family functioning predicts problem gaming but not problem gambling. All the target psychosocial variables, except approval of gambling, predict poor well-being.

On the whole the findings suggest the need to look more closely at the way adolescents, their system of activity and their culture participate in constructing the meaning of gambling and gaming activities and their impact on adolescents' well-being, so that future studies and strategies can more effectively examine the relational dynamics in which problem gambling and gaming develop.

1. Introduction

Gambling and gaming are recreational activities but also a major public health concern (Richard et al., 2020) when they shape a persistent and recurrent problematic behaviour leading to clinically significant impairment (e.g. conflicts, distrust, breakdown of the family unit, jeopardizing of friendships, worsening of school performance) or distress (American Psychiatric Association, 2013). Although gambling activities are legally restricted to adults in the majority of countries, they are not infrequent among youth (Passanisi et al., 2020); those of the early 21st century grow up in a society where gambling is generally accepted and widely available (Volberg et al., 2010). Worldwide, public policies liberalizing gambling and the technological innovations providing new

gambling opportunities have led to a global expansion of the gambling market (Banks, 2017) and has also encouraged the view of gambling as a harmless form of entertainment among the general population (Edman and Berndt, 2016; Pedroni, 2018). The case of Italy – currently, the largest European gambling market and among the most important in the world – is a good example: the market has risen exponentially in the last two decades, so – although the Italian GDP represents only 3% of the world economy – the country accounts for 22% of the global expenditure on gambling (Guiso, 2016).

Young people's problem gambling prevalence rates ranged from 0.2 to 12.3 % worldwide (Calado et al., 2017), while the rates range between 0.1 and 5.8% in the general populations (Calado and Griffiths, 2016). In Italy, the estimated percentage of youth aged 15–19 who gamble range

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from 35.7% (Calado et al., 2017) to 48.8% (Cerrai et al., 2018), in any case one of the highest in Europe (Molinaro et al., 2018); the percentage of those who are at moderate risk or show problem gambling range from 2.3% (Calado et al., 2017) to 8.3% (Cerrai et al., 2018). Lower percentages are reported in a sample of 18–74 years (Barbaranelli et al., 2013), where the prevalence of at-risk gambling was 1.56% and that of problem gambling 1.27%.

With the recent emergence of game-based gambling practices such as loot boxes, social network casinos, free-to-play game mechanics and the increased access to gambling activities via the internet and mobile devices, problematic video game use emerged as a further public health concern. Estimated prevalence rates of problem gaming range from 2% to 4% among European adolescent samples (Müller et al., 2005). Different studies suggest that adolescents who gamble excessively are also highly likely to play video games excessively (Gupta and Derevensky, 1996; Macey and Hamari, 2018; Van Rooij et al., 2014; Wood et al., 2004a, b). Structural similarities between the two problem behaviours were already recognized three decades ago (Gupta and Derevensky, 1996; Griffiths, 1991) and are still marked today (Derevensky and Griffiths, 2019). Both videogame playing and gambling activities provide intermittent rewards and elements of randomness and can be considered a non-financial form of gambling where players try to gain points rather than money. Personality traits (e.g. impulsiveness, harm avoidance and reward dependence traits) (Mallorquí-Bagué et al., 2017; Sanders and Williams, 2019), metacognitive beliefs (Casale et al., 2021) and neurobiological commonalities (Brand et al., 2019; Legault et al., 2021) were also found.

However, the prevailing focus on individual characteristics and the intra-psyche sphere has, on the plane of intervention, often meant medicalization of problems related to gambling and has encouraged the mechanism of delegation by family, school and political institutions (Beck and Beck-Gernsheim, 2002; Stevens et al., 2021; Suissa, 2013). Indeed, when problem gambling is interpreted as a matter of individual health more than a political, cultural, or social concern, neither the government nor the social network (family, peers, neighborhood) is responsible for restricting its consumption (Abbott et al., 2018; Abbott, 2020; Reith, 2007; Venuleo et al., 2017), or for reflecting on the ways they fuel or constrain individual attitudes towards gambling; the individual then becomes the privileged target of the intervention. This aspect appears to be particularly critical when the ultimate goal of the research is to design preventive, more than therapeutic, strategies (Lee et al., 2014): whereas risk factors such as impulsivity, depression, hyperactivity and anxiety are often difficult for parents and teachers to improve, risk and protective factors within the relationship and the community can guide prevention initiatives addressed not only to youths but also to their interpersonal environment.

Recognizing that a complex set of interrelating factors could play a role both in the associations of gambling and gaming and in shifting the continuum of risk downward, ranging from the intrapersonal to the socio-cultural sphere, in this paper a public health perspective will be adopted. It implies a view of people as thinking and acting within a social context and fosters the exploration of the influences of family, community and cultural values on behaviour (Dyall, 2004). In particular, according to a psychosocial and cultural standpoint (McGowan et al., 2000), we emphasize that the way adolescents interpret their social experience and the meaning conveyed by their way of behaving derives from their encounters with other people and from the shared socio-cultural forms of thinking, communicating and acting that shape the traditions of their society (Dressler et al., 2007). From this perspective, gambling and gaming activities can be understood as a meaningful action which conveys points of view not only on the target behaviours but, broadly, on people's social experience and identity (Crossley, 2001; Ferrante and Venuleo, 2021; Rogier et al., 2020). For instance, Morrissey (2008) observes that for young men in certain cultures, voluntary risk-taking may function as a strategy for avoiding culturally denigrated categories like 'wimp' and 'sissy'. As Lightfoot (1997) points out, adolescents' behaviour tells us something about how teenagers see

themselves in relation to their significant others and in relation to the culture in the broadest sense.

On the level of intervention, a public health perspective calls for a view of health behaviours and their management along a continuum, more than in terms of absence or presence of psychopathological symptoms (Dyall, 2004). This means to emphasize the role of the psychosocial protective and risk factors and conditions related to the interpersonal and social sphere which can be addressed to reduce the number of young at-risk and high-risk gamblers, to prevent low-risk youth from becoming at-risk and to promote overall well-being (Messerlian et al., 2005; Reith et al. 2019).

A brief review of the existing research on the role of factors related to the interpersonal and social sphere will be presented below, and the gap in this area will be identified. Then a case study will be presented, designed to explore the role of the qualities of the relational network, approval by family and peers and view of the social environment in predicting problem gambling, problem gaming and overall well-being among adolescents. The results provide empirical evidence on the psychosocial factors and the target on which public policy can act to prevent problem gambling, problem gaming and, broadly, to promote overall well-being among youth.

2. Background

The importance of the family with regards to the development of behavioural problems and poor personal well-being in children and adolescents is widely recognized (Dekovic et al., 2003). Low family support, family functioning and parental monitoring have been identified as leading factors in developing maladaptation problems and in the search for dubious sources of gratification, included gambling (Canale et al., 2016; McComb and Sabiston, 2010; Marinaci et al., 2019; Subramaniam et al., 2017) and videogames (Bonnaire and Phan, 2017; Sugaya et al., 2019; Tejeiro et al., 2012). For instance, youth who report family problems and perceive their families as unsupportive were found at increased risk of developing a gambling problem (Dickson et al., 2008; Hardoon et al., 2004); adolescents who perceived lower levels of parental knowledge were found to be more likely to approve of gambling and show lower awareness of its harmfulness, which were in turn related to higher gambling frequency (Canale et al., 2016); low parental monitoring was also found to be associated to more time on videogames (Gentile et al., 2012) and poor well-being, as in probability of antisocial behaviour and anxiety/depression among adolescents (Bacchini et al., 2011).

The role of positive social norms for understanding youth involvement in gambling and gaming activities has been also outlined. For instance, believing that one's family and peers approve of gambling was found to be associated to more favourable attitudes and to gambling frequency (Hanss et al., 2014; Larimer and Neighbors, 2003). Social-cultural norms may also help to explain the gender gap recurrently reported in the attitude toward gambling and gaming: young males typically were found to hold more positive attitudes toward gambling and gaming, compared to females, and to express the view that these behaviours present no moral problems, as well as being acceptable and also encouraged by their peers (Jackson et al., 2008; Lucas and Sherry, 2004; Wong et al., 2013).

Less attention was addressed to the impact of perceived resources and constraints experienced in their social environment. Few studies have examined the role of social disadvantage related to low income (Canale et al., 2017; Resce et al., 2019; Wardle et al., 2014). For instance, Wardle and colleagues (2014) demonstrated a strong correlation between machine density and socioeconomic deprivation. High Density Machine Zones (HDMZ) with 1 or more gambling machines per hectare had greater levels of income deprivation, more economically inactive people and a younger age profile than other areas. Although no definite answers have yet been provided on this kind of association (Ariyabuddhipongs, 2011), which is likely to be influenced by other factors (e.g.

impulsiveness, sensation-seeking tendency, lack of recreational activities), one reason may be that gambling is recognized as an opportunity for a sudden increase in wealth; namely, a means for coping with the discrepancy between the desired socio-economic status and the reality (Resce et al., 2019).

Other studies support the importance to better investigate dimensions related to the needs and demands addressed to the social environment: social disconnectedness, feelings of meaninglessness, lack of a sense of belonging, perceived isolation and lack of social support were found to present distinct associations with mental health (Choenarom et al., 2005; De Jong Gierveld et al., 2018), including problem gambling (Borrell and Boulet, 2005; Pace et al., 2013; Rogier et al., 2021; Venuleo et al., 2016, 2021) and problem gaming (Moge and Romano, 2020). For instance, in previous studies (Venuleo et al., 2015a, 2015b, 2016), problem groups of adult gamblers, drinkers and internet users were found to differ from control groups in their evaluation of the social environment. More specifically, whereas the control groups tend to express a sense of trust in social norms and institutions and hope in the future, the problem groups perceived the social environment as lacking in rules, and, thus, untrustworthy (e.g. citizens do not respect the rules, healthcare services, public transport, newspapers and TV are perceived as very unreliable and no development of the country is expected). It is reasonable that in such a cultural frame, social norms and values are scorned and behaving in a 'responsible' way does not appear to be a key to acquiring power over events and one's own future.

The evidence cited suggests that it might be productive to look more closely at the interpersonal and social-cultural sphere to better understand the meaning of youth engagement in gambling and gaming activities. However, these kinds of studies are underrepresented in the literature on gambling and are very scarce in Italy, the context of the current study, where most of the research among youths focuses on the prevalence of gambling and gaming (Ferraro et al., 2020; Mastrobattista et al., 2021) and their relationships with risk factors related to the intra-personal sphere (e.g. psychiatric symptoms –Ciccarelli et al., 2020; De Pasquale et al., 2020; self-regulation – Bozzato et al., 2020; Mascia et al., 2020; Velotti et al., 2021). The relationship between youth gambling and gaming as well as their psychosocial determinants, instead, are still largely unexplored. Another criticism, from a public health perspective, is the absence of studies elucidating (dis)similarities in the protective and risk factors related to gambling and gaming on one hand and general well-being on the other. Indeed, recognizing that social-historical and cultural circumstances contribute to make specific risk behaviours particularly widespread among adolescents and, thus, an object of social alarm, it also has to be recognized that the absence of problem gambling or gaming does not necessarily mean absence of subjective malaise and of critical aspects which deserve attention from family, school and health policies. Conversely, higher involvement does not always produce psychosocial malaise and poor adaptation, depending, at least in part, on the interpersonal and social cultural contexts in which the behaviour is shaped, experienced, communicated, and responded to by others (Marshall, 2009; Venuleo et al., 2016). Therefore, examining (dis)similarities in the psychosocial factors predicting gambling and gaming on one hand and well-being on the other hand seems to be a crucial goal to identify unhealthy or at-risk groups among adolescents more effectively and to plan differentiated preventive actions.

2.1. The research project: "what game are we playing?"

Data for the present study were drawn from a broader research project "What game are we playing?" funded by the Department of Pathological Addictions of the Local Health Agency of Lecce (Italy) and addressed to high school students and their parents to investigate their attitudes and perceptions towards gambling and the quality of family relationships. The public health perspective and the psychosocial lens adopted by the project lead to seeing schools as the most suitable context

to broaden the gaze from adolescents to the systems of relationships in which they learn ways to interpret and enact their experience, and promote the implementation of preventive strategies, involving their interpersonal environment (family, teachers, peers). In this paper, we focus on the specific research questions related to data collection among the students, which can be described as follows:

- (1) What is the extent of gambling and gaming consumption, as well as the percentage of adolescents manifesting at risk or problem engagement?
- (2) What is the role of a) qualities of relational network (perceived social support, class support, family functioning, parental monitoring), b) social influence on gambling (approval by family and peers) and c) view of the social environment, in predicting problem gambling, problem gaming and overall well-being? Do specificities exist in the psychosocial factors predicting these three outcomes?

Based on the few existing studies, we expect that a lower quality of relational network and a more negative view of the social environment will correspond to poorer well-being and a higher likelihood of problem gambling and gaming. With respect to family and peer approval, we expect that it may be predictive of gambling and gaming. The role of gender, age and family income will also be considered, as well as the associations among the three outcome variables.

3. Method

3.1. Recruitment's procedure

A letter explaining the purpose of the project was sent to school principals in the Salento area (a geographical area in the south-east of Italy that includes Lecce and the province). Ten schools expressed interest in participating. However, the period the project was scheduled to begin coincided with the pandemic health emergency which led to schools closures and the transition to distance learning. Due the organizational difficulties related to the critical circumstances, unfortunately only three schools were able to assure the steps needed for the administering (e.g. communication to the parents of the study and collection of the informed consent), while others asked to be involved in less difficult circumstances.

In the schools participating, two or three classes between 9th grade and 12th grade were randomly selected to avoid arbitrary selection criteria by schools (e.g. choice of classes considered to be less problematic in order to protect the school's image).

3.2. Participants

On the whole, 595 students were reached by the study. Participants' age range was 13–18-years (Mean age: 15.52 SD = 1.24; females: 68,7%). The socio-demographic characteristics of the participants are reported in Table 1.

4. Instruments

A battery of self-report instruments was administered divided into two sections:

- (1) Gambling, gaming and well-being section.
- (2) Psychosocial factors section aimed to assess the quality of the relationship and the view of the social environment.

All the instruments are confirmed for use with adolescents.

Table 1. Socio-demographic characteristics of the sample.

	Variables	Age group (years)			Total (595)	Chi-square
		13–14	15–16	17–18		
Gender	Male	57 (9.6%)	79 (13.3%)	50 (8.4%)	186 (31.3%)	1.87
	Female	134 (22.5%)	186 (31.3%)	89 (15.0%)	409 (68.7%)	
Parental Social Status	Single	0 (0.0%)	1 (0.2%)	0 (0.0%)	1 (0.2%)	3.90
	Married	162 (27.2%)	227 (38.2%)	112 (18.8%)	501 (84.2%)	
	Divorced	26 (4.4%)	31 (5.2%)	24 (4.0%)	81 (13.6%)	
	Widowed	3 (0.5%)	6 (1.0%)	3 (0.5%)	12 (2.0%)	
Perceived family income	Low	13 (2.2%)	16 (2.7%)	18 (3.0%)	47 (7.9%)	11.90*
	Middle	162 (27.2%)	236 (39.7%)	107 (18.0%)	505 (84.9%)	
	High	16 (2.7%)	13 (2.2%)	14 (2.4%)	43 (7.2%)	
Total		191 (32.1%)	265 (44.5%)	139 (23.4%)	595 (100%)	

* $p < .05$.

4.1. Gambling, gaming and well-being section

4.1.1. Problem gambling

The Problem Gambling Severity Index (PGSI; Ferris and Wynne 2001) was used to assess problem gambling severity. PGSI is intended as a continuous scale and it was designed specifically for use with a general population rather than in a clinical context. The instrument consists of 9 items. For each item, respondents marked how frequently they engaged in various problematic gambling behaviours within a 12-month time frame on a Likert scale ranging from 0 (never) to 3 (almost always). It has a total score ranging from 0 to 27. The PGSI demonstrated good internal consistency ($\alpha = .84$) and good criterion-related validity. A study by Barbaranelli et al. (2013) confirms the internal validity, reliability, and concurrent validity of the Italian version of the PGSI. In this study the alpha value is .910.

4.1.2. Problem gaming

The Gaming Addiction Scale (GAS) - Short-Form (Lemmens, Valkenburg & Peter, 2009, Lemmens et al., 2015) was used to assess problem gaming. The scale consists of 7 items designed to detect excessive use of video games and addiction-like symptoms (e.g., cognitive and behavioural symptoms, mood modification, conflicts). For each item, respondents marked how often this had occurred over the past 6 months on a Likert scale ranging from 0 (never) to 4 (very often). Lemmens et al. (2009) suggested two formats for the assessment of the presence of gaming addiction: a monothetic format (all items scoring above 3) and a polythetic format (at least half of the items scoring 3 or above). The total score ranges from 0 to 7. GAS has shown to be a valid questionnaire specifically designed for adolescents and it is one of the most frequently used instruments. A study by Costa et al. (2020) on a sample of adolescents aged between 13 and 17 years confirms validity, reliability, and concurrent validity of the Italian version, both in its full form and short form. In this study the alpha value is .801.

4.1.3. Well-being

The Italian version (Di Fabio, 2016) of the Flourishing Scale (FS; Diener et al., 2010) was used to evaluate well-being. The FS provides a general overview of the individual's perception of his or her own social-psychological functioning and has the advantage of providing a brief but comprehensive measure of flourishing that summarizes relevant dimensions proposed by other authors (Giuntoli et al., 2017) such as: meaning and purpose in life (Seligman, 2002), quality of relationships with others (Deci and Ryan, 2000), engagement with daily activities (Csikszentmihalyi, 1990), perception of the personal contribution to the well-being of others (Putnam, 2000), perception of personal competence (Deci and Ryan, 2000), self-acceptance (Ryff, 1989), optimism (Scheier and Carver, 2003), and being respected (Brown et al., 2003). FS consists of eight items with response options rated on a 6-point Likert scale

ranging from 1 (strongly disagree) to 7 (strongly agree). The total score ranges from 8 to 56. A high score represents a person with many psychological resources and strengths. The Italian version showed good levels of internal consistency, homogeneity, and validity, in the Italian version too (Giuntoli et al., 2017). In this study the alpha value is .877.

4.2. Psychosocial factors section

4.2.1. Parental monitoring

Parental Monitoring Assessment (PMA; Small and Kerns, 1993) was used. PMA evaluates parental awareness, spontaneous communication by children and direct eliciting by parents. It consists of six items, with response options rated on a Likert scale ranging from 1 (never) to 5 (always). A higher score indicates increased parental monitoring. The instrument has demonstrated good validity and reliability (Patlock-Peckham et al., 2011). In this study the alpha value is .787.

4.2.2. Gambling approval by family members and peers

The questionnaire was constructed ad hoc, based on existing literature on attitudes and the influence of social norms in adolescent problem gambling (e.g. Konietzny et al., 2018; Neighbors et al., 2007). Respondents were asked to indicate the degree of approval of gambling in their context, by responding to the following items: Do my friends approve of gambling; My family members approve of gambling. The evaluation was proposed on a 4-point scale, from strongly disagree to strongly agree. A high score was rated as high approval. In this study the alpha value is .76.

4.2.3. Family functioning

A sub-scale of the McMaster Family Assessment Device (FAD) (Epstein et al., 1983) was used to assess family functioning. The FAD is a self-assessment questionnaire which can be completed by each family member over 12 years of age. The sub-scale used provides an assessment of the overall level of family functioning and the general state of well-being or malaise of the family. It consists of 12 items, with response options rated on a Likert scale ranging from 1 (strongly agree) to 4 (strongly disagree). Higher scores indicate unhealthy functioning. The Italian validation confirms the characteristics of good reliability, internal consistency and validity (Grandi et al., 2007). In this study the alpha value is .808.

4.2.4. Social support

The Perceived Social Support Scale (PSSS; Grundy and Murphy, 2007) was adopted. The instrument consists of seven statements ("There are people I know – amongst my family or family or friends – who: Do things to make me happy; Make me feel loved; Can be relied on no matter what happens; Would see that I am taken care of if I needed to be; Accept me just as I am; Make me feel an important part of their lives; Give me

support and encouragement) with three response categories 1: “not true”, 2: “partly true”, and 3: “certainly true”. The highest score indicates a good level of perceived social support. The instrument showed good reliability parameters ($\alpha = 0.88$) even in later studies (Poortinga, 2006). In this study the alpha value is .89.

4.2.5. Class support – classmates and teachers

Six items of the HBSC (Health Behaviour in School-aged Children) questionnaire (World Health Organization, 2006) were used to assess the level of social support received from the class (My classmates like to be together, most classmates are friendly and helpful, my classmates accept me as I am, my teachers accept me as I am, I feel that my teachers care about me as a person, I feel a lot of trust in my teachers), with 4 response categories, from 1 (strongly disagree) to 4 (strongly agree): High scores indicate good perceived support. The instrument showed good reliability parameters ($\alpha = .81$) in this study.

4.2.6. View of the social environment

The questionnaire View of Context (VOC; Ciavolino et al., 2017) is a self-report instrument designed to map the cultural models through which people interpret their social context (Mossi and Salvatore, 2011). VOC detects the respondents' perceptions, judgments and opinions about their micro/macro social environment (e.g. evaluation of the place where the respondents live, level of reliability of social services like police, hospital, school) and moral social values (e.g. studying, being with family, showing respect). The questionnaire is composed of 45 items associated with a four-point Likert scale (“Not at all”, “Not much”, “Quite a lot”, “A lot” or “Very unreliable”, “Rather unreliable”, “Quite reliable”, “Very reliable”). The instrument proved to have a satisfactory construct validity (Ciavolino et al., 2017). In this study the alpha value is .81.

4.3. Data collection procedure

A letter explaining the purpose of the study was sent to the family of the students belonging to the selected classes and written parental consent was required through the participating schools some days before the survey. A range between 2% and 3% of the parents did not give the consent and in these cases the students were assigned to other school activities during the administration.

The set of instruments were administered on their classroom PCs using Google Forms. A teacher was present in the classroom. Two members of the research team introduced the study and its purpose: to investigate their habits with gambling and gaming and to know their view of the quality of their family relationships and social networks. The voluntary nature of the participation and the anonymity of the responses was underlined and questions were encouraged on any doubts and needs for clarification. Participants were also informed that the data would be analysed collectively and that only the research team would have access to them. Participants spent an average of 30 min responding. The project was approved by the Ethics Commission for Research in Psychology of the Department of History, Society and Human Studies of the University of Salento (protocol no. 16811 of 18 January 2021). The participants provided their written informed consent to participate in this study.

5. Data analysis

5.1. View of the social environment: preliminary analysis

Preliminary analysis was applied to the View of the Context Questionnaire (VOC). Indeed, the methodology underpinning VOC requires a Multiple Correspondence Analysis (MCA) to be applied to the responses of the sample to identify the specific factorial dimensions summing up the relations observed between nominal or ordinal data in the specific sample under investigation (Ciavolino et al., 2017). In this study, the first dimension contrasts two different ways of connoting the experience of the social environment: Moderation (-) versus Reactivity (+). On the

Moderation pole, answers choosing intermediate points on the Likert scale, also with opposing valence, are aggregated (e.g. respondents select “quite” on “to be successful in life you need ...” “to respect rules”, “to acquire knowledge” but also “not have too many scruples”; quite disagree expressed on statement like “this community help me to satisfy my need” and “I feel connected to this community” but also quite agree expressed on statements like “I feel that people are close to me” and “the people around are willing to help me”). On the Reactivity pole, answers choosing the extreme points on Likert scales, both with negative and positive contents, are aggregated (e.g. respondents select “a lot” on “to be successful in life you need ...” “to understand the world” and “to respect the rules” but also “not have too many scruples”; strongly disagree expressed on statement like “nowadays you don't know who to count on”; strongly agree on statements like “I belong to this community” and “sometimes you have to break the rules to help people you care about”).

The second dimension contrasts two ways of evaluating both the macro and micro social environment: Social trust (-) versus Anomie (+). On the Social trust pole, there is commitment to social norms, trust in people and a sense of agency (e.g. respondents select “quite” on “to be successful in life you need ...to respect rules”; quite disagree is selected on the statement “nowadays you don't know who to count on”; agree is selected on the statement “I have a say in what happens in this community”). On the Anomie pole, norms and social rules are spurned in favour of anomic and fatalistic attitudes (e.g. strongly agree is chosen on statements like “nowadays you don't know who to count on”; “Those who succeed in life must thank their luck”; “It is useless to turn to those who hold public roles, because often these people are not really interested in the problems of ordinary people”, “sometimes you have to break the rules to help people you care about”). This contrast has also been identified in previous studies analysing the view of the social environment in groups of hazardous drinkers, gamblers, internet users and control (Venuleo et al., 2016).

The MCA provides a measure of the degree of association of every respondent with every factorial dimension, expressed in terms of the respondent's position (coordinate) on the factorial dimension. The more similarity there is between the respondent's response profile and the profile characterizing the factorial dimension, the higher the respondent scores on that factor. Accordingly, the view of the social environment expressed by each respondent is detected in terms of two factorial coordinates, which were used for the further analysis.

The MCA was performed with the SPAD v. 7.3 software.

5.1.1. Descriptive analysis

Descriptive statistics (average, standard deviation, skewness, kurtosis), were calculated for all variable factors, using SPSS software. With regard to gambling activities, following the indications from Ferris and Wynne (2001), subjects scoring 0 on PGSI were classified as “non-problem” gamblers, those scoring between 1 and 2 were classified as “low risk” gamblers, those scoring between 3 and 7 as “moderate-risk” gamblers and those scoring higher than 7 as “problem” gamblers.

Following the indications from Lemmens et al. (2009), the engagement with video games was defined on the basis of the monothetic (the presence of all criteria) and polythetic (the threshold of 4 criteria out of 7 elements) format of the GAS.

5.1.2. Relationship among the variables

Pearson's correlations were computed in order to test the associations between the psychosocial predictor variables included in the study and the variables related to gambling and gaming severity and level of well-being.

Three separate multivariable linear regression models were carried out, one for each outcome (problem gambling, problem gaming and well-being), and the multicollinearity was evaluated using variance inflation factor (VIF) values and tolerance. All VIF values are less than 1.48, and all tolerance values are greater than 0.67 (Daoud, 2017; Senaviratna and Cooray, 2019), indicating that there is not a problem of multicollinearity.

Furthermore, since a non-Gaussian distribution were expected for gambling and gaming variables the wild bootstrap technique with 5000 replications was employed to further estimate the statistical significance of the observed values (Efron and Tibishirani, 1993).

A multivariate multiple regression model, using the standardized total score of the scales, was performed to assess simultaneously the estimate of the associations between the hypothesized predictors (sex, age, perceived income, parental monitoring, gambling approval, family functioning, class support, social support, view of the social environment) and the three outcome variables (i.e. problem gambling, problem gaming and well-being). The covariance matrix of the observed variables was analysed using a maximum likelihood method estimator. The values of R-squared and adjusted R-squared were computed to test the good fit of the model. The lavaan and semTools packages in R (Rosseeel, 2012) was used to implement the model.

6. Results

6.1. Descriptive statistics

Table 2 shows the descriptive statistics associated to all the variable factors considered.

With regard to gambling and gaming rates, the results indicated that 2% met the PGSI criteria for problem gambling; 6.6% met the criteria for classification as moderate risk gamblers; 16.3% were classified as low risk; the other 75.1% of responders was classified as non-problem gamblers.

As for the engagement in online gaming, 5% of participants met the criteria for GD in the polythetic format (the threshold of 4 criteria out of 7 elements) and 0.5% in the monothetic format (the presence of all criteria).

6.2. Relationships between psychosocial variables and outcome variables

A correlation matrix of study variables is presented in Table 2. With regard to the socio-demographic variables, results show that male gender is associated to a higher score on the problem gambling and gaming scales and lower well-being. Age is associated with gaming and well-being: with decreasing age, gaming involvement increases; with increasing age the perceived level of well-being increases. The perceived family income is associated with well-being: as income increases, so does the perception of well-being.

With regards to the psychosocial variables, the lower the parental monitoring, the higher the gambling approval from family and friends, the lower the social support, the higher the score on problem gambling, problem gaming and the lower the score on well-being; the worse the

family functioning, the higher the score on gaming and the lower the well-being. Furthermore, the higher the class support, the higher the well-being. With regard to the view of the social environment, well-being presents a significant relationship with the first factorial dimension of the VOC questionnaire: lower well-being is associated to a reactive attitude to the social environment; all three outcomes present a significant relationship with the second factorial dimension: problem gambling and gaming are associated to the anomie polarity; well-being to the social trust polarity. Finally, a positive relationship exists between gambling and gaming and a negative relationship between gaming and well-being.

7. The impact of socio-demographic characteristics and psychosocial variables on measures of well-being, problem gambling and gaming

Results of the multivariate multiple regression demonstrate distinctive associations of some predictor variables with the three outcome variables (Table 3). Bootstrap estimates show to be stable.

Being male is associated with both problem behaviours [gambling: $\beta = -.09$; $p < .05$; gaming: $\beta = -.28$; $p < .001$] and poor well-being ($\beta = -.08$; $p < .05$); low perceived family income is associated with poor well-being ($\beta = .13$; $p < .001$) but not with problem gambling or gaming; age proves to have an impact on problem gaming and poor well-being: the lower the age, the higher the likelihood of problem gaming ($\beta = -.14$; $p < .001$) and the lower the likelihood of poor well-being ($\beta = .09$; $p < .01$).

With regard to the psychosocial variables, low levels of parental monitoring predict both problem gambling ($\beta = -.18$; $p < .001$) and gaming ($\beta = .09$; $p < .05$) and low levels of family/friend approval predict problem gambling ($\beta = .09$; $p < .05$); poor family functioning is negatively associated with well-being ($\beta = -.12$; $p < .01$) and positively with problem gaming ($\beta = .09$; $p < .05$), but not problem gambling. Social support is negatively associated with problem gaming ($\beta = -.10$; $p < .05$) and positively associated with well-being ($\beta = .21$; $p < .001$). The first and second factorial scores related to the view of the social environment are positively associated to well-being (respectively $\beta = .26$; $p < .001$ and $\beta = .11$; $p < .01$): this means that a reactive way to evaluate the social environment and an anomic view of the context predict poor well-being. The second factorial score related to the view of the social environment is also positively associated to both gambling ($\beta_{pgsi} = .13$; $p < .01$) and gaming ($\beta_{gas} = .11$; $p < .05$): this means that a anomic view of the social context is associated to problem gambling and problem gaming.

R-squared and adjusted R-squared show a good fit of the model (Table 3). The total amount of variance explained by the model and indicated by the Total Coefficient of Determination (TCD = 0.52) shows a good fit to the observed data. The value of 0.52 corresponds to a

Table 2. Relationships between socio-demographic characteristics psychosocial variable and problem gambling, problem gaming and well-being.

N = 595	Problem gambling	Problem gaming	Well-being	Mean (SD)	Skewness	Kurtosis
Sex	-.16*	-.30*	-.03	1.68 (.46)	-.81	-1.35
Age	.05	-.13*	.08**	15.52 (1.24)	-.22	-1.15
Perceived income	-.07	-.05	.16*	1.99 (.39)	-.06	3.65
Parental monitoring	-.24*	-.20*	.28*	4.21 (.69)	-1.31	1.48
Gambling approval	.20*	.19*	-.13*	6.00 (2.21)	1.42	2.09
Family functioning	.08**	.17*	-.38*	23.37 (5.51)	.25	-.15
Class support	-.07	-.08	.41*	17.70 (3.17)	-.45	.81
Social Support	-.18*	-.15*	.34*	18.98 (2.78)	-1.53	2.01
VOC1 - Reactivity (-) vs Moderation (+)	-.02	-.06	.46*	.00 (.39)	.60	.06
VOC2 - social trust (-) vs Anomie (+)	.19**	.15**	-.23*	.00 (.34)	1.59	3.384
Problem gambling	-	.27*	-.07	.74 (2.16)	5.83	48.66
Problem gaming		-	-.17*	.72 (1.27)	2.08	4.30
Well-being			-	42.74 (8.19)	-.74	.46

* $p < .01$. ** $p < .05$.

Table 3. Impact of socio-demographic characteristics and psychosocial variables on problem gambling, problem gaming and well-being.

Variables	Problem gambling				Problem gaming				Well-being				Tolerance	Vif
	Adjusted ^a		Unadjusted ^b		Adjusted		Unadjusted		Adjusted		Unadjusted			
	β	β	SE	BCa (95%CI) ^c	β	β	SE	BCa (95%CI) ^a	β	β	SE	BCa (95%CI) ^a		
Sex	-.09*	-.10*	.04	(-.19, -.00)	-.29**	-.28**	.04	(-.36, -.19)	-.09***	-.08*	.035	(-.15, -.02)	.90	1.11
Age		.05	.04	(-.03, .13)	-.14**	-.14**	.04	(-.22, -.06)	.95***	.09***	.033	(.02, .17)	.96	1.04
Perceived income		-.07	.04	(-.15, .01)		-.06	.04	(-.12, .01)	.12**	.13**	.033	(.05, .21)	.96	1.04
Parental monitoring	-.18**	-.18**	.04	(-.29, -.07)	-.10*	-.09*	.04	(-.19, .01)	.12***	.13**	.036	(.06, .19)	.82	1.21
Gambling approval	.12***	.10*	.04	(.01, .19)		.06	.04	(-.02, .15)		.04	.036	(-.04, .11)	.84	1.20
Family functioning		-.03	.04	(-.13, .06)	.10*	.09*	.04	(.00, .19)	-.12***	-.12***	.038	(-.21, -.04)	.73	1.37
Class support		.01	.05	(-.07, .08)		-.01	.04	(-.10, .08)	.20**	.20**	.039	(.11, .29)	.72	1.39
Social Support	-.13***	-.10*	.05	(-.21, -.00)		-.00	.04	(-.10, .09)	.10***	.10***	.039	(.02, .19)	.71	1.40
VOC1 Reactivity (-) vs Moderation (+)		.07	.05	(-.02, .16)		.03	.05	(-.06, .12)	.26**	.26**	.040	(.18, .34)	.68	1.48
VOC2 Social trust (-) vs Anomie (+)	.08*	.13 ***	.04	(.03, .23)	.12***	.11*	.04	(.01, .20)	-.11***	-.11***	.036	(-.20, -.01)	.83	1.20
F(10,584) test	12.43	8.55			22.39	11.75			38.14	34.44				
R ²	.10	.13			.16	.17			.37	.37				
Adjusted R ²	.10	.11			.15	.17			.36	.36				
Predictive R-squared	.09	.08			.12	.13			.34	.34				
	$p < .01$		$p < .01$		$p < .01$				$p < .01$				TCD = 0.52	

* $p < .05$. ** $p < .001$. *** $p < .01$.

^a Adjusted model.

^b Unadjusted model.

^c BCa 95% CIs = Bias Corrected and Accelerated 95% Confidence Intervals. Bootstrap results are based on 5000 wild bootstrap samples.

correlation of $r = 0.72$ which is a large effect size according to the traditional criteria of Cohen (1988).

8. Discussion

The main purposes of the study were a) to explore the extent of gambling and gaming consumption and problem rates in an Italian sample of adolescents and b) to examine (dis)similarities in the psychosocial factors preventing or favouring problem gambling, problem gaming and poor well-being, also taking into account the associations among the three variables. In the following, findings about the prevalence data will first be discussed; then an overview of the findings emerging from the regression model is offered, along with a detailed comment on each of the target predictors considered.

8.1. Prevalence data

PGSI scores reveal 16.3% to be at low risk, 6.6% at moderate risk and 2% manifest problem gambling. In a previous prevalence study in the Italian high school populations, different screening instruments were used and, thus, findings are not directly comparable: based on the SOGS, Matrobattista and colleagues (2021) indicated that 3.0% met criteria for severe problem gambling, 3.5% for risk gambling and 22.7% for no problem gambling; based on the revised version of SOGS, De Luigi et al. (2018) found that 5.0% of students were problem gamblers and 9.1% were at-risk gamblers.

With regard to gaming, GAS scores reveal that 0.5% and 5% of the sample show a video-game addiction with Monothetic and Polythetic analysis respectively, consistently with the estimates of recent studies in Europe (Dreier et al., 2017; Müller et al., 2015). Based on GAS scores, the study by Esposito et al. (2020) on an Italian sample of pre-adolescent and adolescent students found that the presence of pathological cases among students is equal to 1.93%, and 4.5% obtained respectively with Monothetic and Polythetic analysis.

Although the adolescents not at risk represent the majority of the sample, the percentages detected deserve attention, for different reasons. Research has shown an association between gambling and other at-risk

behaviours, such as alcohol consumption, cigarette smoking and marijuana use (Griffiths et al., 2010; Splevins et al., 2010). Indeed, manifesting social or not problematic consumption of gambling and gaming activities obviously does not mean being without risk in the brief or medium term. Furthermore, the percentages of at risk or problem students is higher compared to the adult population to which the strategies of intervention are traditionally addressed. Understanding what kind of factors sustain the transition from problem-free consumption to problem use and preventing this transition is a priority from a public health and population-based perspective (Messierlian et al., 2005; Reith et al. 2019). The findings of the current study offer some indications on the importance of addressing attention to youth's interpersonal environment and to their view of the social environment where they live.

8.2. Associations with the psychosocial variables

The regression model identifies a common core underpinning problem gambling, gaming and low well-being among adolescents but also highlights the distinct roles of a few psychosocial variables in the likelihood of the three outcome variables.

More specifically, being male, perceiving low parental monitoring and, with regard to the social sphere, perceiving low social support and having a view of the macro-social environment as an unreliable and anomic context play a significant role in predicting both problem gambling and gaming activities, with which they were also found to be associated.

The perception of low social support and higher gambling approval from family and friends predict problem gambling but not problem gaming, while lower age and low perceived family functioning predict problem gaming but not problem gambling.

All the psychosocial variables inserted in the model, except gambling approval from family and friends, predict well-being.

8.3. The role of the socio-demographic characteristics

Being male is a common risk factor in the likelihood of the three outcome variables. The impact of gender on gambling and videogame

playing is consistent with previous studies, which have identified being male as a risk factor for problem gambling (Blinn-Pike et al., 2010; Molinaro et al., 2018) and video-game playing (Lucas and Sherry, 2004; Ogletree and Drake, 2007). Previous research has suggested the role of social norms and perceived benefits and risks in explaining gender differences. For instance, it was shown that the acceptable parameters of electronic game playing are more restricted for girls (Funk and Buchman, 1996) and that boys receive more positive encouragement from their peers (Lucas and Sherry, 2004; Wong et al., 2013). Ronay and Kim (2006) observe that masculinity stereotypically shares a connection with risk-taking and found empirical evidence that the company of other males facilitates such behaviours. In the study of Splevins et al. (2010) female adolescents were found to be significantly more likely to see gambling as a risky activity which was not economically sound. The authors observe that, given that both problem gamblers and non-problem gamblers perceive gambling as risky, the differentiating factor appears to relate to attitudes toward money as a valued commodity. Another possible explanation of the “gender gap” could be related to the Italian environment. Bastiani et al. (2013) observe that in Italy marketing targeted men in particular, including young men, offering and promoting particularly appealing gambling opportunities for this target of consumers (i.e. sports betting, on-line poker, slot-machines in bars, etc).

With regard to age, the findings show that younger individuals have a higher likelihood of problem gaming and poor well-being. The result is consistent with studies reporting higher time spent using the Internet and video games in early adolescence (Holtz and Appel, 2011). Early adolescence is also described as a time of increased vulnerability to problems in the regulation of affects and behaviour (Steinberg, 2005), a recognised risk factor for developing problem gaming use (Kököneyi et al., 2019) and psychological malaise.

The lack of impact of family income on gambling is not consistent with previous studies suggesting that lower income groups spend proportionately more than higher income groups do (Marshall, 2000) and are more vulnerable to problem and pathological gambling (Wong and So, 2003). However, most of the studies were conducted with an adult sample and little is known about the impact of socioeconomic inequalities on adolescent problem gambling. A recent Italian study suggests that adolescent students who live in more disadvantaged regions have a higher probability of being at-risk and problem gamblers (Molinaro et al., 2014). However, the cross-sectional design of the existing research does not allow causality to be established in the relationships identified. To our knowledge, no studies have examined the association between family income and video-game use. One might suppose that family economic difficulties may prevent adolescents from searching for other forms of leisure or socializing activities and/or favour feelings of social malaise that in turn motivate taking refuge in the virtual scenario of the videogame. However, based on our findings, neither gambling nor gaming can be seen simply as an attempt to offset feelings of economic deprivation (Mishra et al., 2017). Further studies are needed to examine the role of other individual (e.g. beliefs, impulsiveness) and contextual factors (policy, social and recreational opportunities) in mediating the association between gambling and social-economic disadvantage.

The impact of perceived family income on well-being is consistent with previous studies where socioeconomic inequality has shown to have an increasing impact on adolescent health (Elgar et al., 2015).

8.4. The role of parental monitoring

The role of parental monitoring has been widely recognized as a protective factor toward youth engagement in health-risk behaviour, such as unprotected sexual activity, alcohol consumption and marijuana use (Albertos et al., 2016; Fosco et al., 2012); the few existing studies confirm the role of parental monitoring also with regard to youth gambling (Lee et al., 2014; Spångberg and Svensson 2020) and video-game playing (Bonnaire and Phan, 2017). Low monitoring might suggest that there is no serious risk or no concern about adolescents

getting involved in gambling and other activities (Canale et al., 2016; Venuleo et al., 2019). In the study by Canale (2016), adolescents who perceived higher levels of parental knowledge were more likely to disapprove of gambling and had higher awareness of its harmfulness, which in turn were negatively related to gambling frequency. Parental monitoring might also be associated with peer-group selection (e.g. Goldstein et al., 2005; Lee et al., 2014) and social pressure from peers in shaping the acceptable norms of conduct (Wood et al., 2004a, b).

8.5. The role of family functioning

Low family functioning was found as a common risk factor for problem videogame playing and poor well-being, suggesting that the quality of the relationship between adolescents and their parents and friends might play a crucial role both in protecting adolescents from psychological distress and in influencing the possibility of playing videogames as a maladaptive coping strategy. It is widely recognized that adequate emotional sharing, high flexibility in rules, and good levels of satisfaction of all family members contribute to adolescents' well-being and prevent the development of the so-called addiction behaviours in adolescents (Fosco et al., 2012; Sari and Dahlia, 2018). Concerning videogame playing, research is still in its early stage but our findings, confirming the assumed impact of family functioning, are consistent with the study of Bonnaire and Phan (2017) on French adolescents. The author found that the problem group had lower family cohesion, more family conflicts and a poorer family relationship than the control group. Adolescents with broken family relationships may tend to play in order to get benefit from social interaction and to escape from a dysfunctional family environment (Park et al., 2008). The lack of impact of family functioning on gambling highlights the importance of future research to further elucidate the relationship between these variables. Although family functioning is related to a variety of adolescent risk behaviours, its relationship with adolescent gambling behaviours remains elusive (McComb and Sabiston, 2010); previous studies found that it was not a significant predictor of at-risk/pathological gambling (Ellenbogen et al., 2007), while others found that a two way relationship exists, with family playing an important role in the initiation and evolution of gambling and problem gambling also adversely affecting family functioning (Subramaniam et al., 2017), or that the association is moderated by other variables. For instance, the study by Slecicka et al. (2018) suggests the value of the perceived concordance of family values: in families with effective problem-solving, common family values might facilitate recognition of and reaction to the first signs of problems.

8.6. The role of the family/friend approval toward gambling

The impact of perceived family/friend approval of gambling on the likelihood of manifesting problem gambling is as expected: perceived approval may favour consumption and prevent the awareness of the risk related to the activity; it has been suggested that interpersonal approval may represent the developmental determinant of dysfunctional meta-cognitive beliefs about gambling (Rogier et al., 2021). The variable does not predict problem gaming, suggesting that – although most games involve kinds of gambling practices – the perceived attitudes toward the two activities are different. Most adolescents are given a smartphone by their parents and share with their peers the easy access to videogames. It is reasonable that these aspects favour a view of gaming consumption as a socially accepted form of leisure and entertainment throughout family subcultures. In the light of this result, the fact that only gambling approval was investigated is a limit of the current study.

8.7. The role of class and social support

Low class support and low social support were found to be associated to poor well-being, consistent with previous studies suggesting that the lack of social support is a predictor of lower life satisfaction and negative

affect across age (Siedlecki et al., 2014) and that support from teachers and peers was more strongly associated with well-being among adolescents (Chu et al., 2010; Ciarrochi et al., 2017). The perceived lack of social support may constitute a stressor in itself or a buffer that can amplify the adverse psychological impacts of exposure to negative life events (Thoits, 1985).

As expected, low social support also predicts problem gambling. Previous studies have suggested that good support can buffer stress and support decisions to reduce or abstain from gambling (Schwarzer and Knoll, 2007; Thomas et al., 2011) while in the absence of a support network, people may see gambling as a way to escape from difficulties related to their unpleasant emotions (Gupta et al., 2004; Wood and Griffiths, 2007; Venuleo et al., 2021).

The lack of impact of social support on gaming is not obvious, but it is at any rate understandable. As suggested above, gaming consumption, more than gambling, is seen as a socially accepted form of leisure and entertainment. It is reasonable that it is practiced daily by most adolescents, whether they are problem gamers or not, and whether they perceive high or low support from their social networks, even if different reasons may motivate the consumption. The lack of impact of the class support on the two behavioural outcomes is consistent with studies that have suggested that gambling and gaming might favour social grouping and peer affiliation both for non-problem as well as problem gamblers and gamers (Räsänen et al., 2016; Recuero, 2009; Treppe et al., 2012). Depending on the peer subculture and social norms, the interpersonal environment can exert positive social controls over behaviour or negative pressure. It is reasonable to assume that in the current social-cultural scenario, gaming and gambling consumption are encouraged by peers and also appear to be a way of making friends and having a support network. Future research should examine the role of class and social support in more detail, also taking into account the mediating role of individual factors, recognized as playing an important role in gambling and gaming, such as neuropsychological characteristics (Conversano et al., 2012) and temperament (Slutske et al., 2012).

8.8. The role of the view of the social environment

The analyses suggested the impact of the first factorial dimension in the view of the context questionnaire in predicting well-being and the impact of the second dimension on all three outcomes.

With regard the first dimension (Connotation of the social environment), the higher the subjects' score on 'Reactivity', which reveals a tendency to have a reactive, extreme and negative attitude towards the micro and macro social environment, the more likely they are to score lower on the well-being scale. This finding is consistent with studies which have highlighted the association between emotional complexity – defined as having emotional experiences that are broad in range and well differentiated – and interpersonal adaptability (Kang et al., 2003; Kang and Shaver, 2004; Salvatore et al., 2021; Venuleo et al., 2020a,b).

With regard to the second dimension (evaluation of the social environment), the higher the subjects' score on 'Anomie', the lower the well-being and the higher the likelihood of problem gambling and problem gaming. According to Thorlindsson and Bernburg (2004), at the core of the anomie concept lies 'the general idea that the absence of clear rules of behaviour and ambiguity in rules and goals create a state where the individual faces uncertain, conflicting expectations and ambiguous norms and values.' (p. 274). It is reasonable that without hope in the subject's power to get ahead in a context perceived as lacking in rules, and, thus, as untrustworthy, the person's self-perceived functioning in important areas such as relationships, self-esteem, purpose and meaning is compromised. The impact of anomie on the two behavioural outcomes is also fully understandable. Adolescents positioned on this polarity perceive their socio-cultural environment as a place where people cannot count on anyone, expect themselves, and lucky and breaking the rules are represented as the only means to get success in life. It is reasonable that within this scenario, social norms and values are unable to work as regulators of

one's thoughts, desires, and the present is the only representable experience. Gambling and gaming may underline this meaning, as activities related to immediate pleasure or the attempt to restore a sense of self-agency (Rogier et al., 2020). The findings are consistent with previous studies on hazardous behaviours and substance use (Venuleo et al., 2016, 2018) and with the notion of "cultural consensus" proposed by Dressler et al. (2007), arguing that the degree of proximity of one's beliefs and behaviours to widely shared cultural models influences the levels of psychosocial distress and health outcomes, including engagement in risky behaviors.

8.9. Relationships between gambling, gaming and well-being

As expected, gambling activities and video-game playing were found to be associated to each other. Influential scholars have highlighted the structural similarities of gambling and gaming (Griffiths and Wood, 2000). The findings discussed above also highlight the shared association with common psychosocial risk factors.

The association between gaming and well-being is consistent with the idea that gaming can be understood as a maladaptive way of escaping from emotional distress and coping with difficult life experiences causing pain, stress and suffering (Blasi et al., 2019; Deleuze et al., 2019; Schwartz, 2006). Low well-being can be expected also as a result of problems related to problem gaming, according to the idea that one of their harmful effects is the disruption of significant relationships (Király et al., 2018) with a resulting increase or decrease in psychological distress. The lack of association of gambling with well-being is not obvious. However, research generally fails to take into account the role of the social and cultural environment in defining the meaning of a certain behaviour and its impact on well-being (Marinaci et al., 2019). We might hypothesize that the impact of these activities on well-being depends, at least in part, on the social network in which the behaviour is shaped, experienced, communicated, and responded to by others. Consistently, Dressler et al. (2007) have suggested that it is the degree to which individuals, in their own beliefs and behaviours, approximate widely shared cultural models that is associated to their levels of psychological and psychosocial distress and health outcome.

9. Conclusions

The findings discussed above deserve attention both at the theoretical level and on the plane of intervention.

On the theoretical plane, they represent a contribution to the analysis of the psychosocial protective and risk factors related to problem gambling, problem gaming and poor well-being among adolescents, highlighting the importance of taking into account the role of the interpersonal and social sphere along with the other dimensions (e.g. neurobiological, temperament and personality's traits) related to the individual sphere on which most of the previous studies focused. At the same time, findings highlighted specificities in the psychosocial paths which influence the three outcomes considered. Specifically, low perceived social support and higher gambling approval from family and friends were found to have a role in predicting problem gambling but not problem gaming, while low perceived family functioning predicts problem gaming but not problem gambling. We have suggested that such differences may be related, at least in part, to the wider social-cultural consensus on gaming (testified by the great access to smartphones allowed by parents to their children) which may favour – through different social networks – a view of gaming consumption as a form of leisure and entertainment more socially accepted than gambling, favouring socialization and exposing the user to fewer dangers in the relational sphere. Whereas a different degree of interpersonal consensus seems to contribute to predicting problem gambling, psychosocial malaise does not appear to play this role: problem gambling was not found to be significantly associated to well-being, nor to poor family functioning. Further analyses are needed to test whether other variables, included

those considered in the current study, mediate the relationship. For instance, within family and peer subcultures which express a positive attitude toward gambling, disruptions of the relationships may not be a negative outcome of gambling consumption, in contrast to subcultures where gambling consumption is disapproved. Previous studies support the idea that social and cultural norms play a major role not only in shaping the extent of the harm related to people's way of behaving (López & Guarnaccia, 2000).

Poor family functioning seems crucial to explaining the consumption of problem gaming, which was also found to be associated with poor well-being: these findings are consistent with studies suggesting that problem gaming may work as a maladaptive way of escaping from emotional distress, gaining relief from feelings of helplessness, and of coping with difficult life experiences causing pain, stress and suffering (Kardefelt-Winther, 2014; Puiras et al., 2020; Schimmenti et al., 2012).

A further point that is worth highlighting is the impact on all three outcomes of the way the quality of the social environment is evaluated; a role largely underestimated by the existing literature. Our findings suggest how important the perception of a meaningful, reliable context may be for adolescents' well-being and for preventing problem consumption of gambling and gaming.

On the level of intervention, findings suggest the need to look more closely at the way adolescents, their system of activity and their culture participate in constructing the meaning of gambling and gaming activities and, thus, the importance of identifying the adolescents' interpersonal network as the crucial target of preventive initiatives. In the schools involved in the project, the findings will be used to promote among the students and their adult reference points (parents, teachers) the acknowledgment of the potential role that they may play to prevent not only problem gambling and gaming but, more broadly, psychosocial malaise. However, the interpersonal sphere represents only one side of the issue. The feeling of living in an anomic context where being lucky is more important than acquiring knowledge to construct one's future is a dramatic risk factor emerging in the current study which requires innovative and effective efforts at community and political levels. "What cultural game are we playing, as parents, as peers, as neighbours, as politicians?": it may be a useful question to enable strategies to take into account the relational dynamics in which problem gambling and gaming and poor well-being develop.

9.1. Limitations and further directions of research

The study has some limitations. First, the limited size and non-randomly selected sample does not allow us to generalise the findings.

Second, all information was collected through self-report measures; social desirability biases and people's limited self-knowledge are recognised as the two most critical weaknesses of these kind of instruments (Dislich et al., 2015) and the accuracy of individual responses cannot be assured. For instance, this would result in an underestimate of the true rate of problem gambling and gaming; on the other hand, the percentages are consistent with those reported by other surveys; it is conceivable that instructions given to students prior to questionnaire completion informing them that the data were analysed collectively and that only the research team would have access to them may have mitigated the risk of not accuracy of self-reports. With regards to the psychosocial variables, it is reasonable to assume that the significant differences detected in the evaluation of the psychosocial environment reported by students characterized by different levels of engagement in gambling and gaming does not merely reflect social biases.

Third, the cross-sectional design of the study does not allow definitive statements about the association between psychosocial factors and the outcomes under analysis. Longitudinal research is needed to identify the temporal and causal nature of the dimensions considered.

Fourth, our study focused upon interpersonal and social characteristics, but it is recognized that the individual level influence at-risk and problem gambling and gaming (Canale, 2016); further research should

examine whether and how the psychosocial variables considered in the current study increment the explanation provided by other individual factors such as impulsivity, sensation seeking, as well as neuropsychological determinants.

As a further point, it has to be noted that our analysis did not take into account the impact of smartphone ownership, a recognised predictor of gaming and gambling (Derevensky et al., 2019). Further studies are needed to examine whether other psychosocial variables mediate the relationship between smartphone ownership and age at which youths begin to use mobile devices and start problem gambling and gaming.

Finally, qualitative studies are needed to get a richer picture of the relationship between gambling, psychosocial factors and subjective well-being and to understand whether and according to what criteria adolescents recognize problem gambling and problem gaming, how they explain their consumption and what kind of strategies they deem to be effective in preventing problem gambling and gaming among youths.

Declarations

Author contribution statement

Tiziana Marinaci: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Claudia Venuleo: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Lucrezia Ferrante: Performed the experiments; Analyzed and interpreted the data.

Salvatore Della Bona: Conceived and designed the experiments; Analyzed and interpreted the data.

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Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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