

# The Role of Cultural Factors in Differentiating Pathological Gamblers

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**Abstract** It is recognised that cultural factors play a role in the onset and continuation of several mental health problems. However, there is a significant lack of empirical studies investigating the relationships between cultural factors and gambling behavior. This study assessed whether the subjective cultures through which subjects interpret and enact their experience of the social environment play a major role in increasing (or decreasing) the probability of pathological gambling. Participants, recruited in three different contexts (public health services for the treatment of addiction, casino, undergraduate course) were subjected to the South Oaks Gambling Screen (SOGS) (Lesieur and Blume in *Am J Psychiatry* 144(9):1184–1188, 1987), in order to identify a group of pathological gamblers—and with the Questionnaire on the Interpretation of the Social Environment (QUISE) (Mossi and Salvatore in *Eur J Educ Psychol* 4(2):153–169, 2011)—in order to detect their subjective cultures. The study compares pathological group (scoring >5 on SOGS,  $n = 34$ ) and a healthy control group (scoring <1 on SOGS,  $n = 35$ ). One-way analysis of variance (ANOVA) was used to compare groups on QUISE scores of subjective culture. Moreover, a logistic regression was applied in order to esteem the capability of the QUISE scores to differentiate between pathological gamblers and control. The results are consistent with the hypothesis that pathological group expresses different subjective cultures compared with no gambler subjects. The theoretical and clinical implications of the results are discussed.

**Keywords** Pathological gamblers · Cultural factors · Subjective cultures

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## Introduction

Gambling is a widespread social phenomenon.

Expenditure on gambling has been increasing in the United States (Christiansen 1993; Walker and Dickerson 1996), in Australia (Bennett 1993) and in Europe (Beconia 1996). In Italy—the specific context of our study—in 2010 the public gaming industry collected 61.4 billion euros (amounting to almost 4 % of the Gross Domestic Product—GDP) with an increase of almost 30 % compared to 2008 (Amministrazione Autonoma dei Monopoli di Stato 2011). The Italian case is particularly interesting, as Italy has been hit heavily by the Great Recession (2009–2012), and since fall 2007 it has been experiencing a strong drop in the Gross Domestic Product (GDP) and an increased unemployment rate. However, in the same period gaming expenditures grew significantly. At the beginning of 2009 expenditure was 54 billion and reached 77 billion in 2011, with a 44 % increase in a two-year span (Capacci et al. 2014). In contrast, in the US, although the recession ended in the summer of 2009, the gaming industry still feels its lasting effects (Palenik 2011). In 2008, the gross gaming revenues of the US national commercial casino came to \$32.5 billion and were down 4.7 percent compared to 2007 (Lee 2011).

The legalization of an increasing range of gambling games plays a role in the increased spending on gambling (Walker and Dickerson 1996). Some types of gambling gain legitimacy as forms of entertainment (also by opening casinos, promoting national lotteries, making gambling accessible to youths) and are even recognized for their psychological benefits (Korn and Shaffer 1999). Reith (2007) emphasises the growth of new discursive formations promoting the values of risk taking, hedonism and instant gratification and offer efficacious examples with the lottery advertisements that urge consumers to live for the present ('lotto—the biggest risk of becoming a millionaire'—Netherlands lottery; 'all you need is a dollar and a dream'—New York lottery).

Nonetheless, gambling is also a very serious health problem, with major implications for society and individuals (i.e. domestic violence, family breakdown, job loss, alcohol or other substance dependence, depression or even suicide, criminal charges and jail sentences) (Hoffmann 2011; Walker and Dickerson 1996).

Estimates of the number of problem and pathological gamblers in different countries vary widely. However, several population surveys suggest that the magnitude of the issue vary from 1 to 3 % in the United States (Volberg 1993), in different parts of Canada (Ladouceur 1993), in Australia (Dickerson et al. 1996) and Europe (Beconia 1996). The lowest standardized prevalence rates of problem gambling tend to occur in Europe, with intermediate rates in North America and Australia, and the highest rates in Asia (Williams et al. 2012). As concerns Europe, according to the report by Williams et al. (2012), the higher standardized prevalence occurs in Italy, Sweden, Switzerland, Estonia and Finland, while the lowest rates occur in Denmark, the Netherlands and Germany. As concerns Italy, although it is difficult to produce an accurate estimate, a national survey on Italian gaming habits (Associazione "Centro sociale Papa Giovanni XXIII"), coordinated by the Coordinamento Nazionale Gruppi per Giocatori (CONAGGA), estimates 1,720,000 million "at risk" gamblers and 708,225 adult pathological gamblers. According to the Italian Department of Health (2011) which has collected data from different regions of Italy, the percentage of problem gamblers ranges from 1.3 to 3.8 % of the general population, with the percentage of pathological gamblers between .5 and 2.2 %, depending on the region under study. Some of such inter-regional variability probably depends on the fact that the figures for each region result from different methods and instruments. However, a part of

the inter-regional variability can be considered to reflect the deep socio-cultural differences among Italian Regions (e.g. between North and South Italy).

### The Psychological Interpretation of Gambling

Pathological gambling was introduced in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (APA 1980) where was codified as “Impulse Control Disorder that is not codified anywhere”. In the current edition (DSM V) gambling is moved under a new classification titled “Addiction and Related Disorders” (APA 2013).

With the recognition of pathological gambling as a psychiatric disorder, several explanations of the syndrome have been proposed, many of them embedded within an “epistemology of sickness and disease” (Reith 2007). The identification of the individual determinants of pathological gambling seems to be the main focus of authors in the psychological literature. It is beyond the scope of this paper to make a comprehensive analysis of the literature. We report evidence here only to illustrate a key point: many studies maintain that the cause and mechanisms of pathological gambling (like any other psychopathology) reside in the individual and they need to be addressed as such (inter alia: Myrseth et al. 2009; Eisenegger et al. 2010; Thomas et al. 2013).

Cognitive theories have modelled gambling as a function of false or irrational beliefs, based on specific cognitions (i.e.: Clarke 2004; Delfabbro et al. 2006; Martinez et al. 2011; Moore and Ohtsuka 1999; Toneatto 1999). However, some authors have challenged the idea of the gambler as an irrational individual; following the model of rational addictive behavior (Becker and Murphy 1998), they suggested that gamblers are able to choose and pursue what is best for them, given their own preferences and the prevailing circumstances (Mobilier 1993; Skog 1999, 2003). Gamblers are depicted “as investors, calculating the best return on their stakes”, and the engagement with chance is reduced to a mistaken calculation of the laws of economics and probability (Reith 2007).

Focus on the specific individual meaning and defensive function of symptoms can be found in psychoanalytic theories too, where pathological gambling is described as an elaborate defense against *psychic pain* (Rosenthal 1987, 2005; Whitman-Raymond 1988).

Behavioral theories have focused on specific environmental features/factors of the game setting (i.e. possibility to cash in immediately, speed of games, their frequency, structural features of video lotteries) (i.e. Brown 1986; Ladouceur and Sévigny 2005).

In a biological perspective, pathological gambling was related to an alteration of the Central Nervous System and neurotransmitter activity (Comings et al. 1996), regarded as markers of the disorder (Roy et al. 1988). Although researchers emphasize the interaction of biological with wider environmental factors, with such a focus gamblers’ actions are primarily reducible to physiological processes located deep in their body (see: Reith 2007).

In sum, in spite of the diversity of etiologic factors investigated, and of how rational/irrational the gamblers’ choice is considered, the models outlined above share a conception of the PG as the effect of a specific intra-psychic configuration. In some approaches this configuration is seen to be activated by features of the stimulus (the format of the game: i.e. arrangement and availability of Electronic Gaming Machines, anonymity, event frequency, background colors of slot machines), or the history of the gamblers’ prior wins;<sup>1</sup> yet it is maintained that the effect of these features is mediated by the gambler’s intra-psychic processes.

<sup>1</sup> For instance, Thaler and Johnson (1990), based on perspective theory (Kahneman and Tversky 1979), suggest that the manner in which prior outcomes (gain and losses) are coded affect gamblers’ risky-choice.

On the other hand, there is a line of thought interested to exploring the role of contextual factors—gamblers are people who live in a cultural context and cannot but interpret and modulate their actions accordingly.

Borrell and Boulet (2005) argue the need to recognize “the familiar life worlds of people in their communities as a legitimate ‘site’ of research and of intervention” (p. 18). Abt, McGurrin and Smith (1985) observe that contexts “provide the participants ready made cultural texts or rationales for their own constructions of reality” (p. 79) and, accordingly, any model of gambling “...must focus on a player’s interpretations and evaluations of the meaning of gaming activities within a social and cultural context” (p. 80). Messerlian and Gupta (2005) suggest that more research is needed to better understand the role of community factors such as civil/local organizations, social norms, socio-economic variables, and the media in shaping social identity, norms, values, beliefs and behaviors regarding gambling.

Longitudinal studies, grounded on theories of social learning and cultural capital, help to recognize the limits of the individualist approach to gambling, insofar as they reveal the importance of social networks, such as family, friends and colleagues, as well as physical-cultural environment in the initiation of gambling behavior (Bilt et al. 2004; Reith and Dobbie 2011) and in the ways individuals move in and out of problematic behaviour over time (Reith and Dobbie 2013). Anthropological and cross cultural studies underline that gambling takes on different meanings in different cultural contexts and serves different functions with regard to the relationship between the gambler and his/her community (Cf. Binde 2005; Goodale 1987; Woodburn 1982). Ethnographic studies show that cultures play a central role in the identification of what makes a “good” vs a “pathological” player, in the elaboration of hypotheses as to the nature of pathological gambling, its aetiology and treatment (Luck and Bond 1992), in making decision to turn or not to turn to Health services (GAMECS PROJECT 1999).

According to the cultural standpoint, our work focuses on the role of the subjects’ cultures in gambling. The notion of subjects’ culture entails a conception of the person as being embedded in a cultural context and, at the same time, as an active subject who enacts a specific positioning within the cultural context, thus playing a main role in negotiating his life-world (López and Guarnaccia 2000).

Consistently with many conceptualizations of the socio-symbolic processes, we think of the culture as a symbolic universe shared by a certain social group, providing the semiotic resources grounding the way of perceiving and experiencing and therefore the way of dealing with the material and social world (Geertz 1973; Triandis 1996; Valsiner 2000; Zittoun 2006).

Based on a recent joint psychodynamic and semiotic research perspective (Salvatore and Pagano 2005; Guidi and Salvatore 2013; Mossi and Salvatore 2011; Salvatore and Freda 2011; Salvatore and Venuleo 2008, 2013), the symbolic universe can be understood as the interweaving of generalized meanings encompassing the whole experience of the social environment.<sup>2</sup>

Meanings are the byproduct of an ongoing process of sensemaking unfolding through discursive and behavioral practices (Salvatore and Venuleo 2009, 2013). In the final analysis, the culture can be seen as a system of practices which are socially patterned and historically reproduced (Gone and Kirmayer 2010).

<sup>2</sup> Elsewhere, we have proposed a dynamic and semiotic model of meanings, according to which generalized meanings can be conceived as the byproduct of an ongoing dynamics of sensemaking, marked by an affective side (see: Salvatore and Venuleo 2009, 2013).

The generalized meanings composing the culture work as a set of basic assumptions guiding and constraining the way of interpreting the discrete objects of experience. In this sense, any culture pushes the subject to homogenize his meaning-making within and among levels (feelings, thinking, attitudes, judgments) and content (event, rules, tasks, goals,...) of experience. Believing that life is a “question of luck”, or rather “of effort and pain” is an example of generalized meaning, which does not concern a specific aspect, but encompasses all the experience as a whole.

Any generalized meanings can be conceived as a polarity of an oppositional dimension, which we call *Latent Dimension of Sense*—e.g. pleasant versus unpleasant; trustworthy versus untrustworthy; familiar versus unfamiliar (Mossi and Salvatore 2011; Venuleo and Guidi 2010). This mode of representing generalized meaning is grounded on the recognition of the basic bivalence of meaning (Salvatore and Valsiner 2012)—namely the fact that meaning is an oppositional structure: any affirmation of a quality is at the same time the negation of the opposite quality (for instance, to state “S is good” involved to state the negation of the opposing idea “S is bad”).<sup>3</sup>

Accordingly, *a Culture can be interpreted (and represented) in terms of basic Latent Dimensions of Sense*. Sharing a culture does not mean that all the actors have to think the same contents and behave consensually. Intra-group differences in the way of feeling, thinking and behaving can be seen as different positions within a shared symbolic universe, namely different interpretations of the common cultural system (Salvatore and Venuleo 2013). We use the term *subjective culture* to mean a particular plotting of basic positions on the Dimensions of Sense through which culture can be interpreted and represented (for instance, a combination of the position “trustworthiness” on the Dimension of Sense “trustworthiness-untrustworthiness” and the position “dependence” on the Dimension of Sense “dependence-autonomy”).

It is worth noting that the definition of culture provided above allows one to go beyond the idea of culture as a monolithic entity, and therefore to consider culture as a system having an inherent inner variability (Cohen 2009; Valsiner et al. 2010). The same cultural context works as the grounds and the source of different *subjective cultures*, resulting from the foregrounding of a certain set of meanings of the cultural context compared to others which are left in the background.<sup>4</sup> This process of foregrounding is the output of a continuous intersubjective negotiation within the life worlds (family, school, workplace, ...) of people in their communities mediated by the symbolic resource provided by the cultural context (Linell 2009; Markus and Kitayama 1998; Shweder and Sullivan 1990; Zittoun 2006). Thus, due to the way the process of foregrounding works, a certain set of meanings emerges as probable, other patterns as less probable, still others as highly improbable. Beside the conditions and the instruments (i.e. in the case of gambling: the casino, the regulations and politics of prevention of gambling or of its promotion) (Messerlian and Gupta 2005; Reith 2007; Welte et al. 2004), the historic-cultural heritage offers the

<sup>3</sup> The idea of oppositional structures of signification is also expressed in the psychoanalytic literature (see, for instance, the *good/bad scheme* proposed by Klein 1967), in literature on the Semantic Differential technique and within Social Representations Theory, maintaining that representations are grounded on themata (Markova 2003), the latter being generalized meanings having oppositional structure.

<sup>4</sup> Referring to the way different social groups interpret masculinity, Goncalves and Machado (2007) note: “both middle class and working class models of masculinity rely on the control over women and children and on the role of the provider, but, while the former values knowledge, self-control and rationalization, the latter frequently emphasizes physical force and hard labour” (pp. 269–270).

meanings through which a certain subject culture develops.<sup>5</sup> It is worth emphasizing that this way of conceiving subjective culture can take the role of the individual into account, yet without falling into an atomistic conception of society, namely to see it as an additive combination of single persons. This is so because subjective culture consists of the individual positioning, yet within the socially shared symbolic universe, revolving around a coherent set of values, norms, cognitive styles, ways of perceiving and acting.<sup>6</sup>

The notion of subjective culture may recall that of subculture (Abt et al. 1985; O’Leary and Carroll 2012), traditionally understood as a set of ways of understanding, behaviors, and artifacts used by particular groups. Nonetheless, we prefer the former term because subcultures have often been equated with an aggregate of persons, identified through demographic features (such as youth) or a collectivity, identified through a specific system of activity (such as a gang). In short, subculture is treated as a subsociety (Fine and Kleinman 1979).

In contrast, we conceive subject culture as a generalized system of meanings instantiating an area of the cultural universe and, as such, channelling people’s way of interpreting the whole experience and thus the way of acting, thinking and feeling (Cohen 2009; Triandis 1996; Venuleo and Salvatore 2008); this way may favor different systems of activity and groupings of people who are very different from a socio-demographic point of view. Therefore, the criterion for belonging to a subculture is traditionally structural or network based (Fine and Kleinman 1979), namely a subculture is conceived of as belonging to a certain social group, characterized by a specific pattern of local meanings and behavior—e.g. the subculture of the supporters of a certain soccer team, with its distinctive signs, rituals, values and ways of acting. In contrast, subject culture (as intended here) is a generalized system of meaning which does not correspond to a given social group; rather such a system of meaning, because it is generalized, is transversal among groups—namely individuals belonging to two different social groups may share the same subjective culture just as two individuals members of the same social group may have two different subjective cultures. Incidentally, this view is consistent with the recognition of the fact that gamblers do not share common cultural values and behaviors (Prus 2004; Raylu and Oei 2002).

The meanings any subject culture is composed of are not merely abstract judgments—they are a way of experiencing the social environment, of being channelled to act and react in a certain way. For instance, as Goncalves and Machado (2007) suggest, conceiving

<sup>5</sup> For instance, it can be seen that the idea of gambling promoted by the Italian national lotteries advert is that of a chance to stop working and to solve all kinds of problems, which it would be “unreasonable” to waste. For example, an advert for the “national ticket to luck” of some years ago shows a happy family spending their holiday in a beautiful exotic place with the background comment that suggests: “Stay on holiday as long as you want”. Other adverts say: “Today might be the day. Take the chance” (2004); “Do you like easy wins?” (2004); “Win often, win now” (2005); “Bring out the rich man within you” (2005).

<sup>6</sup> The term subject culture can be found originally in Triandis (1972, 2002). According to the author, the subjective culture includes ideas about how to make the elements of material culture (e.g., how we build a house), how to live properly, and how to behave in relation to objects and people. However, the use we make of the term presents two main specificities. Firstly, whereas for the author the subject culture is a *society*’s “characteristic way of perceiving its social environment” (Triandis 1972, p. viii, 3), we regard a subjective culture as a way of perceiving the social environment which characterizes an individual or a homogenous groups of individuals. Accordingly, a subjective culture does not correspond to the culture, which may express many subject cultures. Secondly, whereas for Triandis beliefs, norms, values, attitudes, rules and tasks are the elements making up a subjective culture, we regard these elements as the byproduct of the culture, in the sense of the symbolic universe made up of dimensions of sense. Subjective cultures, as systems of meanings, depend on the subjects’ positioning within the dimensions of sense grounding beliefs, norms, values, rules, and so on. .

homosexual orientation as a disease encourages the seeking of cure at a medical and psychological level, while when sexual orientations are fully accepted the distinction between lesbian, gay and heterosexual is a meaningless distinction in orienting the way people relate to each other.

Different subject cultures have different capacities to encourage adaptive behaviour. Generally speaking, this capacity reflects the consistency between beliefs, feelings and actions motivated by the culture the subject belongs to and the role demands the social environment makes to the person. Some subjective cultures encourage behaviors and attitudes that are related to interpersonal and social tasks, rules and goals, others do not. This means that the capacity of a subjective culture to support social adaptation depends on the goals and the “rules of the game” of the cultural context. For instance, let us think of Formula 1 racing drivers. If we think of the risk they run by driving fast, we will certainly call them “gamblers”. Nonetheless, within their interpersonal environment their gambling behavior is approved, encouraged and rewarded with a lot of money and popularity. In certain youth cultures, driving fast (as well drinking alcohol, smoking marijuana and other risky behavior) can be recognized as a sign of courage (thus gamblers appear even better integrated than non gamblers), while among other cultures the same behaviour may be disapproved of as irrational and irresponsible. In this sense a gambling problem is something that happens among people—namely it is something that is negotiated in the social and intersubjective exchanges, not only just inside them.

### **Scope of the Study and Hypothesis**

Our argument is that subjective cultures play a major role in increasing (or decreasing) the probability of pathological gambling. According to this view, in order to understand pathological gambling behavior, one has to analyze how subjective culture grounds, motivates and directs the subject to act in that way.

This argument is consistent with studies which found that difficulty in acculturation is associated with problem gambling (Ellenbogen et al. 2007; Raylu and Oei 2004) and plays an important role in the onset and continuation of numerous mental health issues (Oei and Raylu 2009).

The current study intends to test whether the existence of particular subjective cultures is associated with the probability of pathological gambling.

Our hypothesis is that pathological gamblers (having social, vocational, or financial damage from their gambling), are different from no gambler (i.e. control subjects) as to their subjective cultures, namely as to their positions on latent Dimensions of Sense (or rather, on some of them) composing the cultural universe they belong to.

### **Method**

#### **Sample**

The study was conducted in a middle-size South Italy town (Lecce).

The study is based on a convenience sample of 318 participants (females: 160; age  $30.61 \pm 12.598$ ), recruited in three contexts: 44 game players, recruited in a casino (females: 6; age  $42.66 \pm 14.270$ ), 109 patients attending the public health services for the

treatment of addiction (females: 13; age  $38.58 \pm 9.391$ ), 165 undergraduate students attending a course of psychology (females: 141; age  $21.98 \pm 6.190$ ).

The choice of using the public health services for the treatment of addiction as source of recruitment of gamblers was based on a vast literature showing that pathological gamblers are over-represented among drug abusers (inter alia: Liu et al. 2009; Maccallum and Blaszczynski 2002; Petry and Champagne 2012; as regards Italy: Bonfiglio and Barletta 1992; Capitanucci and Biganzoli 2000).

Socio-demographic characteristics (sex, marital status, education and job status) of the sample, disaggregated for the three contexts, are reported in Table 1. As one can expect, the three subsamples shows significant differences on all characteristics: age [ $F(2, 312) = 161.987$ ;  $p < .001$ ], sex [ $\chi^2 = 169.432$ ;  $df = 2$ ;  $p < .001$ ], marital status [ $\chi^2 = 73,634$ ;  $df = 4$ ;  $p < .001$ ]; education [ $\chi^2 = 167.124$ ;  $df = 4$ ;  $p < .001$ ], job status [ $\chi^2 = 53,605$ ;  $df = 6$ ;  $p < .001$ ].

## Instruments

The study was based on 2 instruments:

- The *Questionnaire on the Interpretation of the Social Environment* (QUISE) is a recent instrument designed for mapping the cultural context of a given population and to identifying subjective cultures in which the cultural context is articulated. Moreover, the measurement of the subcultural position is provided for each respondent. In the current study a short version of the instrument was used, established on the basis of data provided by the previous usage of it (Mossi and Salvatore 2011; Venuleo et al. in press). The cultural context is analyzed in terms of the set of meanings it provides to subjects for connoting the social environment (Carli and Salvatore 2001; Guidi and Salvatore 2013; Mossi and Salvatore 2011). The QUISE consists of 10 items designed to facilitate the expression of perceptions/opinions/judgments concerning the micro and macro social environment (e.g. evaluation of the place where the subject lives, level of trustworthiness of social structures, such as National Health System, Trade Unions...) and social identity (e.g. moral judgments on critical social behaviors, expectation as to the future). Any combination of “question/response choice” (which, from the statistical point of view, becomes a “variable/modalities” combination) was chosen as a specific marker that could identify the potential meaning of a specific cultural profile in the symbolic field expressed by a specific population. Two features give the questionnaires the power to encourage generalized evaluations, rather than, for instance, to prompt circumstantiated reasoning or knowledge (Cf. Mossi and Salvatore 2011). First, most of the items concern generic objects (e.g. “Italian people”, “Italy”). Indeed, when the object is proposed in terms of a generic class, it is more likely to work—as it were—as a projective stimulus. Second, items are associated to response modes that force the respondents to position themselves compared to a contrasting position. This makes the structure of the response isomorphic to the oppositional structure of the Dimensions of Sense. The items are associated with a 4-point Likert scale (e.g. “very unreliable”, “quite unreliable”, “quite reliable”, “very reliable”; “strongly disagree”, “quite disagree”, “quite agree”, “strongly agree”), therefore without intermediate alternatives, purposely chosen as a way to “force” the answers towards opposite modes of response. Previous studies (Carli and Salvatore 2001; Mannarini et al. 2012) have shown the satisfying construct validity of QUISE in the Italian context. An item

**Table 1** Socio-demographic characteristics of the sample

	Sex		Marital status			Education			Job status				
	Female	Male	Single	Married	Divorced/ Separated	Middle school	High school	Tertiary education	Student	Employee	Professions	Jobless	Retired
Public health services n = 109	13	96	74	26	9	74	32	3	2	23	20	60	4
Casino n = 44	6	38	19	17	8	9	24	11	7	22	6	4	5
Undergraduate course n = 165	141	24	159	5	1	0	144	21	155	6	4	0	9
Total N = 318	160	158	252	48	18	83	200	35	164	51	30	64	18
Chi square	169,432		73,634			167,124			53,605				
<i>df</i>	2		4			4			6*				
<i>p</i> value	.000		.000			.000			.000				

\* Conditions jobless and retired were aggregated for computing the Chi square

analysis on data provided by the current study was performed. The inner consistency proved satisfactory (Cronback  $\alpha = .72$ ).

- The *South Oaks Gambling Screen* (SOGS) is a widely used 20 item self-report questionnaire based on DSM-III diagnostic criteria for pathological gambling (Lesieur and Blume 1987). The SOGS was originally developed to screen for pathological gambling in clinical settings but its use has expanded to other purposes, settings, and populations, including prevalence studies of pathological gambling in the general population. Although questions have been raised about the accuracy of the SOGS with its use in these new settings and populations, SOGS has proved to have good parameters of reliability among general Western populations and clinical samples (Lesieur and Blume 1993; Stinchfield 2002) and good diagnostic efficiency (Williams and Volberg 2010), and it remains as one of the most widely used prevalence measures in the world (Abbott and Volberg 2006). Lesieur and Blume (1993) report a Cronbach's alpha of .97. In a study of Stinchfield (2002) SOGS was found to have satisfactory reliability with coefficient alphas of .69 and .86 in a general population and a gambling treatment samples, respectively. In the current study, the inner consistency proved satisfactory (Cronback  $\alpha = .87$ ). Furthermore, the SOGS was found to have satisfactory validity by differentiating between the general population and the gambling treatment sample and by exhibiting high correlations with DSM-IV diagnostic criteria and moderate correlations with other measures of gambling problem severity (Stinchfield 2002; Tang et al. 2010).

## Procedure

Three different administrations were been carried out, one for each context of recruitment (i.e. the casino, the health service for the treatment of drug addiction and the undergraduate psychology course). In the casino, once the authorization of the casino director was obtained, we approached participants singly at the entrance or exit of the casino and asked them to complete the questionnaires. In the case of health service for the treatment of drug addiction, the application were carried out in eleven different sites all of them being part of to the Department of Pathological Dependence of the ASL of Lecce; questionnaires were administered individually in a room made available by the service. In the case of students, the instruments were administered collectively, in two sessions, before the lesson started.

In all cases, subjects were informed about the general aim of the questionnaires and the voluntary nature of the participation.

## Data Analysis

The analysis was performed in two steps.

### *Step 1: Measurement of the Subjective Cultures*

The responses of the sample ( $n = 318$ ) to the QUISE were subjected to Multiple Correspondence Analysis (MCA, Lebart et al. 1984), with the purpose of detecting patterns of response modalities that reoccur through respondents. MCA can be seen as the principal component analysis with categorical data. Although there are alternative statistical procedures for analyzing categorical data, the advantage of MCA "lies in its capability of permitting a theoretically unlimited number of variables to be included simultaneously in

the analysis” (Blasius and Thiessen 2001, p. 19). As such, MCA appears coherent with the suggestion that culture is a complex phenomenon to analyze (Batista-Foguet et al. 2000), therefore requiring a different approach from studying isolated answers connected to isolated perceptions, opinions and judgments; it calls for an approach focused on the recognition of the interdependency of all the survey variables. According to this premise, MCA is recognized as a useful method for the concise mapping of the relations observed among the set of variables. These relations are summed up by a limited number of latent synthetic variables (factorial dimensions) (Blasius and Greenacre 1998).

Each factorial dimension extracted by MCA describes the juxtaposition between two patterns of co-occurring response modalities across respondents. Each factorial aggregation of response modalities lends itself to being interpreted as the effect of a latent generalized meaning linking the response modalities independent from their specific content (Hellsten et al. 2010; Landaeur et al. 1998; Lebart et al. 1998; Salvatore and Venuleo 2013; Venuleo et al. in press). Accordingly, we consider factors as the markers of an oppositional dimension made of opposite generalized meanings, above called *Latent Dimension of Sense* (Mossi and Salvatore 2011; Venuleo et al. in press).

We focused on the first two factorial dimensions (henceforth: QUISE1 and QUISE2) extracted from each MCA, as the ones explaining a relevant proportion of the data matrix’s inertia (see below, Results). We adopted the subjects’ scores (factorial coordinates) on the two factorial dimensions as measures of their subjective culture.

The higher the respondent’s factorial coordinate, the higher the degree of association between the respondent’s profile of answers and the profile characterizing one of the two polarities of the factor/Dimension of Sense.

### *Step 2: Comparison Between Pathological Gamblers and Control*

This step was aimed at comparing pathological gamblers and healthy control group. To this end, a subsample ( $n = 69$ ) was extracted from the whole sample, in order to obtain two comparable groups.

Following indications from Lesieur and Blume (1987), a cut-off score of 5 was chosen to identify probable pathological gamblers. 34 subjects were thus selected (11 attenders of the casino, 21 users of health services for the treatment of drug addiction and 2 students frequenting the academic program) and composed the Pathological Group (PG). 35 participants (7 attenders of the casino and 28 students frequenting the academic program) were randomly selected from the 179 (19.5 %) respondents scoring 0 on SOGS score and selected as Control Group (CG). Gender was balanced in the control group.

The PG group ( $N = 34$ ) aged  $44.62 \pm 12.63$  years, the CG group ( $N = 35$ ) aged  $22.91 \pm 6.23$  years (ANOVA test:  $p > 0,000$ ). The groups’ socio-demographic characteristics are shown in Table 2. All characteristics vary significantly between groups.

One-way analysis of variance (ANOVA) was used to compare groups on QUISE scores of subjective culture. Moreover, a logistic regression (Hosmer and Lemeshow 2000) was applied in order to esteem the hypothesized effect of the subjective cultures, in terms of the capability of the QUISE scores to differentiate between pathological gamblers and control. More specifically, the membership of PG versus CG was used as outcome variable and the two QUISE factorial scores (i.e. QUISE1 and QUISE 2) as predictors. Logistic regression was performed by means of the SPSS package, adopting the backward method of linear regression, based on the criterion of maximum partial likelihood estimates.

**Table 2** Pathological gamblers versus Controls' socio-demographic characteristics

	Sex		Marital status				Education			Job status			
	Female	Male	Single	Married	Divorced/ Separated	Middle school	High school	Higher school	Student	Employee	Professions	Jobless	Retired
Pathological Group n = 34	3	31	15	12	7	19	11	4	1	11	4	14	4
Control Group n = 35	18	17	34	1	0	1	31	3	31	1	3	0	0
Total n = 69	21	48	49	13	7	20	42	7	32	12	7	14	4
Chi square	14,786												
<i>df</i>	1												
<i>p</i> value	.000												
	23,666												
	2												
	.000												
	53,605												
	4												
	.000												

The logit function is given by the natural logarithm of the ratio between the probability that the  $i$ -th subject belongs to the pathological group ( $p_i$ ) and the probability that the subject belongs to the control group ( $1-p_i$ ).

## Results

### QUISE1 and QUISE2 Scores

After applying the Benzécri formula of inertia adjustment (Benzécri 1979), it was found that the first factorial dimension of the QUISE (QUISE 1) accounts for 46.4 % of the inertia, and the second (QUISE 2) for 15.9 %: on the whole, these two factorial dimensions account for 62.3 % of the total inertia expressed. Tables 3 and 4 show the most significant modalities of answers characterizing respectively QUISE1 and QUISE2 polarities (Henceforth, we adopt the capitals for labelling the Dimensions of Sense and the italics for the interpretation of polarities).

### QUISE1: Modality of Connoting the Experience of the Social Environment

#### *Reactivity versus Moderation*

This dimension opposes two patterns of answers which we interpret as the markers of two ways of connoting the experience of the social environment.

#### *Reactivity*

Answers adopting the extreme scores on Likert scales (e.g. “very low”, “not at all”), in prevalence those with a negative content (e.g. Italians are very “deceived” and “desperate”), are aggregated.

#### *Moderation*

Answers adopting intermediate scores on the Likert scales (e.g. “quite reliable”, “quite capable”), in the main cases those with positive content (e.g. Italians are quite “reliable” and “capable”), are aggregated.

### QUISE2: Valuation of the Social Environment

#### *Reliability versus Unreliability*

This dimension opposes two ways of evaluating both macro and micro social environment.

#### *Reliability*

Institutions and people are very reliable and supportive. Country and the place where one lives are perceived in a positive way.

**Table 3** Response modes most significantly associated to the first factorial dimension

## QUISE 1: Modality of describing the experience of the social environment

Test value	Item	Answer mode
<i>Reactivity</i>		
-10.67	Local reliability 'Public administration'	Not at all reliable
-10.54	Italian reliability 'Public administration'	Not at all reliable
-9.79	Local reliability 'Law enforcement'	Not at all reliable
-9.57	Degree of development 'Italy'	Very low
-9.16	Agree 'Italians are committed to improving human society'	Strongly disagree
-8.81	Agree 'It will be more and more difficult to find people to trust'	Very agree
-8.81	Agree 'Citizens are committed to improving human society'	Strongly disagree
-8.69	Italian reliability 'Healthcare services'	Not at all reliable
<i>Moderation</i>		
8.21	Italian reliability 'Law enforcement'	Quite reliable
7.82	Agree 'I like living in Italy'	Quite agree
6.25	Local reliability 'Law enforcement'	Quite reliable
6.15	Local reliability 'Newspapers and TV'	Quite reliable
5.49	Italian reliability 'Newspapers and TV'	Quite reliable
5.42	Italian reliability 'Healthcare Services'	Quite reliable
5.38	Agree 'Citizens are committed to improving human society'	Quite agree
5.30	Italians are 'Capable'	Quite capable

**Table 4** Response modes most significantly associated to the second factorial dimension

## QUISE 2: Evaluation of the social environment

Test value	Item	Answer mode
<i>Reliability</i>		
-9.41	Local reliability 'Law enforcement'	Very reliable
-7.85	Italian reliability 'Law enforcement'	Very reliable
-7.60	Degree of development 'Local territory'	Quite high
-7.11	Agree 'I like living in Italy'	Strongly agree
-6.98	Local reliability 'Newspapers and TV'	Very reliable
-6.63	Italian reliability 'Newspapers and TV'	Very reliable
-6.55	Agree 'Italians are committed to improving human society'	Quite agree
-6.44	Agree 'Citizens respect the rules'	Quite agree
<i>Unreliability</i>		
6.64	Agree 'I like living in this Country'	Quite disagree
6.11	Italian reliability 'Public transport'	Quite unreliable
6.06	Italian reliability 'Law Enforcement'	Quite unreliable
5.83	Italian reliability 'Newspapers and TV'	Quite unreliable
5.78	Local reliability 'Healthcare services'	Quite unreliable
5.76	Degree of development 'local territory'	Quite low
5.69	Agree 'I like living in Italy'	Quite disagree
5.09	Italian reliability 'Healthcare services'	Quite unreliable

**Table 5** QUISE 1 and QUISE 2 scores

	N	Factorial coordinates			Factorial coordinates			p value		
		QUISE 1			QUISE 2					
		Mean	df	F	Mean	df	F			
<i>Context</i>										
Public health service	21	-.2424	-.36055	6.065	.004		-.2367	.36074	12.668	.000
Casino	18	-.0622	.38129				-.2394	.28513		
Undergraduate course	30	.1063	.32941				.0587	.26203		
<i>Sex</i>										
Female	21	.0562	.34627	2.144	.148		-.0019	.31065	.078	.781
Male	48	-.0875	.38672				.0238	.36699		
<i>Marital status</i>										
Single	49	-.0300	.36100	1.270	.288		.0159	.34281	.086	.918
Married	13	-.1715	.47506				.0400	.38219		
Divorced/Separated	7	.0971	.25973				-.0286	.37742		
<i>Education</i>										
Middle school	20	-.2535	.34890	5.007	.009		-.2210	.40595	7.816	.001
High school	42	.0298	.37226				.1098	.26708		
Tertiary education	7	.1143	.27464				.1300	.32414		
<i>Job status</i>										
Student	21	.0652	.30239	1.643	.175		.0923	.26516	5.514	.001
Employee	12	-.1050	.36453				.2225	.36529		
Professions	7	-.2314	.64045				.0314	.28748		
Jobless	14	-.1729	.36364				-.3021	.35540		
Retired	4	-.0625	.21838				-.0650	.35912		

*Unreliability*

Institutions (e.g. Law Enforcement, Healthcare services), as well as Italian people are unreliable. Country and the place where one lives are perceived as uncomfortable and non-supportive.

Table 5 reports the QUISE scores associated with the socio-demographic characteristics.

Significant differences were found among subjects for different contexts both on QUISE 1 [F(2.66) = 6.065;  $p < .01$ ] and QUISE 2 [F(2.66) = 12.668;  $p < .001$ ], different education status both on QUISE1 [F(2.66) = 5.007;  $p < .01$ ] and QUISE2 [F(2.66) = 7.816;  $p < .01$ ], and for job status on QUISE2 [F(4.63) = 5.514,  $p < .01$ ]. Subjects recruited in the public health services for the treatment of addiction and casino, compared with subjects recruited in the undergraduate course, as well as subjects with low education, compared with subjects with higher qualifications, have more probability of being in the reactivity side on QUISE1 and the reliability side on QUISE 2. Jobless and retirees have more probability to being in the unreliability side on QUISE 2.

*Pathological Gamblers versus Control*

Table 6 shows SOGS scores, disaggregated for the three contexts.

Table 7 shows the comparison of groups on the QUISE scores. Significant differences were found on QUISE1 [F(1.67) = 9.205;  $p < .01$ ]. The pathological gambler group has a negative score, lying in the reactivity pole; Control’s QUISE1 mean lies in the positive pole.

As to the logistic regression model, a significant effect ( $\beta = -2.064$ ;  $p < .01$ ) of QUISE1 (Modality of connoting the experience of the social environment) was found. QUISE2 has only a tendentially significant effect in the model ( $p = .058$ ). The main parameters of the model are reported in the Table 8.

The negative score of the beta value indicates the *Reactivity* pole (the polarity indicate by the negative scores of the QUISE1 factor), is associated with a higher probability of

**Table 6** SOGS scores

	Public health service (n = 109)	Casino (n = 44)	Undergraduate course (n = 165)	Total (n = 318)	F	p value
SOGS						
Mean	2.70	3.11	.44	1.58	24.966	.000
ds	4.268	4.161	.946	3.232		

**Table 7** Pathological gamblers versus control comparison on age, QUISE 1 and QUISE 2

	Pathological group (n = 34)		Control group (n = 35)		Total (n = 69)		F	p value
	Mean	ds	Mean	ds	Mean	ds		
Age	44.62	12.63	-.0653	.39983	33.61	14.71	82.658	.000
QUISE 1	-.1762	.36969	.0949	.27397	-.0438	.37825	9.205	.003
QUISE 2	-.0653	.39983	.0159	.34873	.0159	.34873	3.786	.056

**Table 8** Logistic regression. coefficients ( $\beta$ ) and parameter of the model

	B	SE	Wald	Df	<i>p</i>	Exp (B)
QUISE1	-2.064	.755	7.471	1	.006	.127
Constant	-.113	.258	.191	1	.662	.893

belonging to the pathological group. In order to evaluate the fitness of the model, the test of *Hosmer–Lemeshow* was applied. The test showed that the predicted values do not differ significantly compared to the observed values ( $\chi^2$ : 9.825; *df*: 8; *p*: .278; 68.1 % of cases classified correctly). Accordingly, the model can be considered reliable.

## Discussion and Conclusions

The results provide support for the hypothesis that pathological gamblers express different subjective cultures, namely different positions on one or more Latent Dimensions of Sense composing their shared culture.

Logistic regression showed that one out of two components of the subjective cultures investigated—the Latent Dimension of Sense we labelled QUISE1 (Modality of connoting the experience of the social environment)—is associated with differential probabilities of belonging to the pathological group or control. More in particular, the subjects that, according to their responses to the QUISE, show to have a reactive negative attitude towards the social environment, have more probability of belonging to the pathological group. In other words, the more the subjects tend to have a reactive, extreme and negative attitude towards the micro and macro social environment, the more likely they are to be pathological gamblers.

According to our view, the reactive subjects' tendency to express negative, extreme connotations and evaluations, can be interpreted as the marker of an intense affective activation. Such an interpretation is supported in those studies (Thorberg and Lyvers 2006) that have shown that addicts reported significantly higher levels of affect intensity compared to non-addict controls. Now, according to a clinical standpoint, one can observe that the condition of intense affective activation triggers a homogenizing form of thinking (Bria 1999; Salvatore and Freda 2011), that in turn reduces the capacity to distinguish between reality and desire, between the value attributed to one's own beliefs and their consistency with facts. Thus, the more the affective activation, the more the inability to learn from reality, to use reality for the regulation of one's thoughts, desires and beliefs, therefore to tackle social constraints and requirements effectively (Salvatore and Venuleo 2008; Venuleo and Salvatore 2008). A study by Ladoucer et al. (1988) provides indirect evidence in support of this view. They found that the percentage of irrational thoughts among pathological gamblers was not significantly higher than the percentage recorded among social gamblers; nonetheless, the latter differed from the others because, as play proceeded, they developed a critical attitude toward their perceptions while pathological gamblers were more and more convinced of the validity of their erroneous perceptions. In the final analysis, pathological gamblers differed from non-gamblers because the former were less able to accommodate their beliefs with reality.

This interpretation is also consistent with studies which have highlighted the association between emotional complexity—defined as having emotional experiences that are broad in

range and well differentiated (Kang and Shaver 2004)—and interpersonal adaptability (Kang et al. 2003; Kang and Shaver 2004).

Furthermore, it should be noticed that in the case of the pathological gamblers of our study, reactivity corresponds to a highly negative connotation of the social environment. This element is consistent with evidence that finds the external stimulation, action, and excitement characterizing pathological gamblers is the antidote to uncomfortable affects, a way to escape from feelings and situations that are felt to be intolerable (see for instance Rosenthal 2005). Borrell and Boulet (2005) have suggested seeing gambling as an articulation of people's resistance "against the threat of the total loss of identity, due to the experience of domination and alienation" (p. 17).

The lack of effect of the cultural component mapped by the second factorial dimension—QUISE2 (Valuation of the Social environment) is worth mentioning. QUISE2 concerns the opposition between two ways of connoting the social environment: positive and reliable versus negative and unreliable. This finding suggests that it is the intensity of the attitude/feeling (as detected by QUISE1) that characterizes the pathological gamblers, but not its content (as detected by QUISE2). On the other hand, this conclusion is not surprising at all. First, both positive and negative connotations are very generalized forms of affective interpretation of experience (Osgood et al. 1957; Salvatore and Venuleo 2013); as such they may be distributed over pathological gamblers as they are over controls. Second, this result is consistent with clinical evidence showing that those who experience highly intense positive affects also tend to experience highly negative affects (Diener et al. 1985; Fujita et al. 1991; Larsen and Diener 1987; Thayer and Miller 1988). However, the finding is not conclusive and needs to be further examined in great depth. Indeed, the result is quite close to statistical significance and therefore could be different with a higher level of statistical power and/or a different sample.

Some methodological limits of the study have to be highlighted.

First, the study adopted a convenience sample localized in a specific geographic area. Therefore, the results cannot be generalized—in other population, different subjective cultures might work as risk/protective factors for gambling. Thus, our study has to be seen as a preliminary case analysis. What we consider can be generalized from it is the fact that there is a relationship between subjective culture and gambling, while the content, the strength and the nature of this relationship is probably context-specific (Salvatore and Valsiner 2012).

Second, we operationally identified pathological gambling in the current research by using SOGS criteria, concerning the problems which gambling may cause (family disruption, job disruption, lying about gambling wins and losses, default on debts, going to someone to relieve a desperate financial situation produced by gambling, borrowing from illegal sources, committing an illegal act to finance gambling). These aspects are not the only indicators of subjective disease connected to gambling, however. Ideally, the prevalence of pathological gambling should be assessed by the convergence of estimates from a variety of different measures.

Third, according to the hypothesis, our analysis was designed to verify whether subjective cultures differentiate the probability of belonging to the group of pathological gamblers. On the other hand, our results cannot be taken as evidence of a causal linkage between subjective cultures and gambling. We proposed above an interpretation of the subjective culture as a factor of vulnerability, and this entails a causal direction from culture and gambling. However, our study does not allow us to rule out the opposite direction, namely that the foregrounding of a certain set of meanings is the byproduct of gambling. Probably the best view is to consider the relation between gambling and

subjective culture in terms of circular causality, namely, to view gambling as the byproduct and at the same time an enacted way of symbolizing the social environment (Venuleo and Salvatore 2008; Salvatore 2013). On the one hand, subjective culture orients a certain representation of gambling, and therefore the meaning one ascribes to the mission/identity/act of the game/player, and it is this meaning that allows the subject to approach gambling and a certain way of enacting it. For instance, the perception of an unreliable context where what happens is meaningless, and whoever achieves success in life has to thank only fate, may entertain the idea that gambling is the only chance for pursuing happiness. On the other hand, people—by means of their involvement to gambling—exchange meanings within gambling institutions, and in this way take part in establishing a gambling culture with distinctive values, beliefs, and informal norms (Abt et al. 1985; Hayano 1982; Ocean and Smith 1993).<sup>7</sup>

Finally, the study leaves open the issue of what kind of relationship exists between different components of subjective culture, as well as between these components and the psycho-social variables (i.e. personality traits, family background, motivation toward gambling, cognitive bias...) investigated by other studies. Problem gambling is the byproduct of a complex set of interrelated factors which extend from biology to family history to social norms (Messerlian and Gupta 2005). Further studies are required in order to highlight the relationship among these variables.

Despite these limitations, the findings discussed above deserve attention, for both their theoretical and clinical implications.

At the theoretical level, the study highlights that subjective cultures, thus the way people position themselves within the cultural context, constitutes a factor to be taken into account in order to understand gambling better. From this standpoint, our study represents a contribution to that line of thought that is striving to underline the role of culture in gambling, a role that has so far seemed rather marginal in the field of gambling studies.

As to the clinical implications, recognizing the role of subject cultures suggests how productive it might be to go beyond exclusively individualistic strategies of interventions, towards clinical strategies aimed at taking into account the relationship between gamblers and socio-cultural context (Salvatore and Zittoun 2011; Venuleo 2012). Particularly, more attention should be addressed to the meanings promoted and suggested by the family life experiences of people in their communities (Borrell and Boulet 2005).

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<sup>7</sup> To give an example, let us consider a group of gamblers sharing the same casino. Every participant produces utterances, body expressions, a way of dressing; the practice occurs in a place full of elements (the kindness of the croupier, the pleasant look of the furniture, ...) which in turn work as further meanings related to the organizational and functional characteristics of the game (the goals, the rules, the roles, the tools and the procedures...) are other sources of meanings. The effect of the combination of these meanings could be an emergence of a global meaning (Salvatore and Venuleo 2009) connoting the intersubjective field as a friendly and reliable context giving an opportunity to people, sharing their loneliness in a hostile and unreliable social environment. For instance, Ocean and Smith (1993) observe that group affiliation, emotional and moral support, self-esteem, social status are likely social rewards within the gambling subculture of casino regulars.

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