Can Temperament Type Predict Online Gambling Addiction?

Online gambling is a type of gambling activity that embraces the range of wagering and gaming activities available in Internet-enabled devices[1]. Gambling addiction is a chronic disease included in the fifth edition of the DSM-5, which, according to the University of Nevada, is often identified by symptoms that include constantly needing to gamble, gambling with growing amounts of money, or feeling anxious when not gambling[2]. Some individuals with gambling addiction develop it because of the excitement gambling causes them regardless if they win or not, and others develop it as an unhealthy coping mechanism to difficult situations and emotions[2].

Gambling addiction is a significant issue because it has several negative consequences. For instance, excessive gambling can lead to changes in the brain's reward system and change a person's behavior completely[2], cause financial instability, contribute to the development of anxiety and depression, produce relationship and occupational problems, and rise suicide risk, since approximately 50% of individuals in treatment for gambling disorder develop suicidal thoughts and about 17% of them attempt suicide, according to the Nevada Council on Problem Gambling[3].

Online gambling has raised some concerns, because it is especially convenient, since it is significantly more accessible, easier to hide, more anonymous, makes it faster to review and place bets, quicker to receive notifications, has a more immersive experience, it sometimes includes greater value for money (including payout rates and bonuses), has a wider number of betting products and options, and more often includes free-play trials than land-based gambling. Studies suggest that the availability of gambling opportunities and the development of addiction problems are significantly positively associated[1]. Besides, spending money online is easier (leading to increased gambling) because people feel they are not spending "real" money, due to the lack of physical exchange of money. Indeed, surveys

indicate that 19–28% of online gamblers feel it is easier to spend more money online, and 15% consider online gambling to be more addictive than land-based gambling[1]. For these reasons, concerns have been expressed that the convenience and accessibility online gambling offers could contribute to the development and prevalence of gambling addiction.

Online Gambling Addiction (OGA) is especially worrying since the online gambling market and popularity are growing quickly. According to Sally M. Gainsbury, the online global gambling market was valued at €6.1 billion in 2013, with an expected annual growth of 10.1% in 2018; and online gambling accounted for an estimated 8 to 10% of the total global gambling market in 2012 (this proportion seems to have increased even more)[1]. Because of this, it is crucial and urgent to understand the depth of OGA and how to prevent it.

A possible predictor could be temperament types, as it is useful to predict other phenomena like mood disorders. The concept "temperament" in psychology is described as "the basic foundation of personality, usually assumed to be biologically determined and present early in life, including such characteristics as energy level, emotional responsiveness, demeanor, mood, response tempo, behavioral inhibition, and willingness to explore"[4] by the American Psychological Association. Although temperament features are mostly present in early childhood, there can still be signs of them during adulthood and adolescence (though altered by environmental and developmental factors). Analyzing those signs will be my main aim. I will rely on the definitions provided above to develop this essay, aiming to answer the question: "**Can Temperament Type Predict Online Gambling Addiction?**".

Among the many studies that have been conducted aiming to find OGA predictors, some have focused on factors related to temperament features. Relying on those studies, the factors I will analyze (and their relation with temperament features) are **impulsivity**,

negative affectivity, **dissociation**, **boredom proneness**, **altered emotional processes, risk-taking behaviors**, **excessive behaviors**, **self-esteem**, and **alienation from society**.

Several studies found that **impulsivity**[5], **negative affectivity**[6] (a tendency to experience distressed emotional states including anger, contempt, disgust, guilt, fear, nervousness, depression, anxiety, and stress), **dissociation**[7], and **high boredom proneness**[8] are predictors for OGA. If these characteristics were present since early childhood and further developed during adulthood, some temperament features may be predictors of OGA.

For example, **impulsivity** may be an indicator of really high emotional responsiveness and short response tempo, because of the intensity and speed that characterize impulsive responses. Various longitudinal studies have also indicated that childhood **impulsivity** levels can predict gambling addiction development in adulthood[9], so it can be suggested that the temperament characteristics associated with it (because they were present during childhood) can predict OGA as well. Regarding **negative affectivity**, it can indicate negative mood, high behavioral inhibition, and low willingness to explore. Because **negative affectivity** includes negative emotional states, it can be expected for people that experience it constantly to have a negative mood; research suggests that some of the emotional states that **negative affectivity** embraces (for example, anxiety) are predictors of high behavioral inhibition; and due to that proneness to high behavioral inhibition, anxiety, and fear, it can be expected for individuals to be less willing to explore new situations and leave their comfort zone.

Regarding high **boredom proneness**, it can be an indicator of low energy levels and low emotional responsiveness, considering that low energy levels have been associated with **boredom proneness**, and low emotional responsiveness can be expected because of the lack of interest and feelings of insignificance involved in **boredom**. Hence, low energy levels and low emotional responsiveness may also be predictors of OGA.

Contrary to **impulsivity**, **dissociation** can be an indicator of very low (or null) emotional responsiveness and long response tempo, since **dissociation** propensity implies a tendency to be emotionally detached. These suggestions differ from the ones provided by the association of **impulsivity** and OGA. However, something that suggestions of both associations have in common is the tendency to have extreme emotional responsiveness (especially high or low) and response tempo (very short or long) to an unhealthy extent. That can be expected since gambling disorder has already been significantly associated with **altered emotional processes**[7]. Thus, extreme emotional responsiveness (regardless of it being high or low) and response tempo (regardless of it being short or long) are expected to be predictors of online gambling disorder, and can also be observed in demeanor because of body language.

Other studies have also observed increased rates of health and mental health comorbidities (involving smoking, alcohol and drug consumption, self-harm, substance abuse, and mood disorders) among individuals addicted to online gambling[10]. Because of the nature of substance abuse and mood disorders, these studies could further support a link between OGA, **impulsivity**, **excessive behaviors,** and engagement in **risk-taking behaviors**. If that were the case, (in addition to) **impulsivity**, **excessive behaviors,** and **risk-taking behaviors** could be proven to be predictors of OGA by establishing a relationship.

Indeed, according to a study made with a sample size of 465 university undergraduates, individuals classified as gamblers addicts had a greater **risk-taking** motivation than non-gamblers, especially, individuals addicted to online gambling, since they had a greater risk-taking motivation than individuals addicted to land-based gambling[11]. The results of this study suggest that a higher **risk-taking** predisposition predicts OGA.

Besides, other studies observed that increased levels of irrational and erroneous cognitions significantly predicted OGA[9]. These studies also indicate that engagement in

risk-taking behaviors, **excessive behaviors,** and **impulsivity** can predict OGA since irrational cognitions lead to dysfunctional decision-making (promoting increased and unnecessary **risky decisions**), **excessive behaviors,** and **impulsivity**[9].

Similar to the associations between **impulsivity** and temperament features, **excessive and risk-taking behaviors** imply high emotional responsiveness and short response tempo, further supporting the presence of these features and **altered emotional processes** in OGA.

Lower **self-esteem** has been associated with gambling addiction as well. Relying on the information stated above, it is understandable, because it is also correlated with depression, anxiety, self-harm, and suicide risk. A study observed that people addicted to gambling invariably expect others to think of them badly, hence, they feel shame, like failures and their **self-esteem** decreases. Hence, individuals addicted to gambling have also been found to be more **alienated from society**[9]. Moreover, in a meta-analysis study of 29 research papers, **self-esteem** was recognized as one of the most significant variables related to adolescent gambling behavior; and in an explorative study, **self-esteem** was one of the significant predictors of a gambling problem among college students. Additionally, several studies suggest that people with low **self-esteem** are more vulnerable to different types of addictive behavior[9]. Thus, **isolation from others**, not feeling enough, feelings of worthlessness, and other reactions and characteristics of people with low **self-esteem** can predict OGA.

Lower **self-esteem** may indicate a negative mood (because of the negative emotions it is associated with) and a shy demeanor (because of fear of rejection). Regarding the tendency to be **alienated from society**, it suggests high behavioral inhibition and low willingness to explore, because of the fear that engaging in new situations and thus, interacting with new people (and being vulnerable to rejection and judgment) causes.

To summarize, factors such as impulsivity, engagement in risk-taking behaviors, and display of excessive behaviors indicate that **very high emotional responsiveness** and **very short response tempo** may be predictors of OGA. However, boredom proneness and dissociation imply that **very low emotional responsiveness** may be a predictor of OGA as well; and dissociation indicates that **exceptionally long response tempo** can also be a predictor of OGA. Since altered emotional processes appear to have an association with OGA, it was suggested that **extreme emotional responsiveness** (regardless of it being high or low) and **response tempo** (regardless of it being short or long) are predictors of OGA.

Negative mood is also suggested to be an OGA predictor, as implied by its relationship with negative affectivity and low self-esteem. Furthermore, **high behavioral inhibition** and **low willingness to explore** may be predictors of OGA, because of their association with both negative affectivity and tendency to alienate from society. Boredom proneness proposed that **low energy levels** may be a predictor of OGA as well. Finally, because of the association between altered emotional processes and OGA, it is expected from individuals with OGA to have an **intensely emotional or especially unemotional demeanor** (especially their body language); and the link between low self-esteem and OGA may indicate that having a **shy demeanor** can predict OGA as well.

<u>Chart 1</u>. Temperament features, and factors that suggest an association between those temperament features and OGA:

Temperament feature	Factors that suggest an association between that temperament feature and OGA
High emotional responsiveness	Impulsivity, engagement in risk-taking behaviors, excessive behaviors, and altered emotional processes.
Low emotional responsiveness	Boredom proneness, dissociation, and altered emotional processes.

Short response tempo	Impulsivity, engagement in risk-taking behaviors, excessive behaviors, and altered emotional processes.
Long response tempo	Dissociation and altered emotional processes.
Negative mood	Negative affectivity and low self-esteem.
High behavioral inhibition	Negative affectivity and tendency to alienate from society.
Low willingness to explore	Negative affectivity and tendency to alienate from society.
Low energy levels	Boredom proneness
Shy demeanor	Low self-esteem
Intensely emotional or especially unemotional demeanor	Altered emotional processes

To answer the question "**Can Temperament Type Predict Online Gambling Addiction?**", yes, relying on what has been stated above, it can be hypothesized that the following temperament type can predict online gambling addiction: Either very high or low emotional responsiveness, either especially short or long response tempo, negative mood proneness, high behavioral inhibition, low willingness to explore, low energy levels, shy demeanor, and intensely emotional or specially unemotional demeanor.

However, it is essential to highlight that specific personal and behavioral predictors of OGA are still unclear and require further research. For example, several studies in Sweden did not support the relationship between OGA, and psychological and physical health problems (such as substance abuse), which supported the link between OGA, high emotional responsiveness, and short response tempo (as indicated by impulsivity, engagement in risk-taking behaviors and excessive behaviors)[10]. Because of this, further research focusing

on temperament types (preferably during early childhood) is needed and would lead to better

identification of temperament types that can serve as predictors of OGA to prevent it.

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