

Video Game Addiction and Aggression in Schools: A Study of Moroccan Adolescents' Behavioral Patterns

<https://doi.org/10.57642/AJOPSY943>

Meriam Amal

meriam.amal@uit.ac.ma
Department of psychology,
University Ibn Tofail, Kenitra,
Morocco
Received: 28/10/2024

Salah Oubkhir

oubkhirsalah@gmail.com
Royal Institute for Training Youth
and Sports Managers, Rabat,
Morocco
Accepted: 23/12/2024

Aicha Ziani

aicha.ziani@uit.ac.ma
Department of psychology,
University Ibn Tofail, Kenitra,
Morocco
Published: 31/12/2024

Abstract

Since the use of video games with violent nature became increasingly popular, several studies have constantly suggested that this type exerts an impact on teenagers by making them more aggressive. This study examines the addictive potential of video games among Moroccan adolescents, and establishes the relationship between the addiction of video games and aggressive behavior. A descriptive-correlational study was conducted on a sample of 154 students aged between 15 and 19 years, the variables were measured using the aggression questionnaire of Buss and Perry and the dependence on video games test of Tejeiro Salguero and Bersabé Morán. Our results suggest that there is a moderate positive correlation between video game addiction and aggressive behavior ($p < .001$), with differences by genre and type of video games used. Boys showed a higher level than girls did at the level of video game addiction and aggression. On the other hand, violent video games had higher scores than other types. The excessive use of violent video games is linked to the increase in aggressive behavior among adolescents, which implies the importance of therapeutic interventions specific to video game addiction and its harmful effects, while highlighting the value of educating parents and social workers about the harmful use of games on the internet.

Keywords: internet gaming disorder, aggression, addiction, adolescence

Introduction

In recent years, excessive use of online games among children and adolescents has become a global health problem (Fumero, Marrero, Bethencourt, & Peñate, 2020). The prevalence of Internet gaming disorder among adolescents varies from study to study, due to differences in regions, assessment criteria and socio-cultural variables considered in the studies (Sussman, et al., 2018; Yang et al., 2020). Revision of the International Classification of Diseases (ICD-11), the World Health Organization (WHO) officially recognized Internet gaming disorder as a diagnostic entity (Kircaburun, Pontes, Stavropoulos, & Griffiths, 2020). Furthermore, this disorder is defined by persistent and recurrent gaming behavior, where individuals prioritize gaming over other activities in their lives, even when this leads to negative consequences (Liu et al., 2022). According to several studies, the period during which an individual begins to develop symptoms of internet gaming disorder appears to be linked to the presence of certain potentially interconnected and distinct biological, psychological and social vulnerabilities (Richard et al., 2020; Richard et al., 2022).

With this in mind, some research suggests a possible link between the excessive playing of violent video games and aggressive behavior; for instance, the recent statement from the American Psychological Association established a link between playing violent video games and increased aggression. However, it also highlighted the need for further research into the specific characteristics of video games (American Psychological Association [APA], 2020).

The theoretical model most commonly used to examine the correlation between violent games and aggression is called the General Aggression Model (GAM). Briefly, GAM is a theory based on appetitive social learning, which proposes that repeated exposure to violent media increases the accessibility of aggressive thoughts, which in turn increases the likelihood of aggressive cognitive patterns, emotions and behaviors (Przybylski & Weinstein, 2019).

It is worth mentioning that the American Academy of Pediatrics has made some important recommendations regarding the use of smart devices by teenagers. They have defined a maximum limit of two hours per day for daily consumption, and above all, the time allocated to video games with a violent aspect should be the minimum possible. In addition, they recommended a ban on the use of pornography and violent video games online, warning of the many dangers involved (AAP Council on Communications and Media, 2016).

That said, this work aims to understand the process of video game use phenomenon via the establishment of a probable link between video game addiction and aggressive behavior while specifying the differences between the sexes, and the types of video games consumed by adolescents in Morocco.

Method

Participants and procedure

The study focuses on a sample of 154 students (81 boys and 73 girls) from the 10th, 11th, and 12th grades. They are aged between 15 and 19 years old, living in the province of El Jadida in Morocco. The mean age of the participants was 16.73 years with a standard deviation of 0.93. Prior to the start of the study, a detailed protocol explaining the objectives and methodology was approved by the institutional review board. The students also received an information sheet ensuring the confidentiality and anonymity of their data, and were invited to give their informed written consent.

Tools

Dependance on video games test

To measure respondents' level of addiction to video games, we used a dependence on video games test developed by Ricardo A. Tejeiro Salguero & Rosa M. Bersabé Morán. It is based on DSM IV criteria for substance dependence and pathological gaming, as well as on the literature about addictions (Tejeiro Salguero & Morán, 2002). With reference to the shift from the concept of "dependence" to that of "addiction" in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), after the World Health Organization (WHO) has recognized video game disorder (Leouzon et al., 2019).

The dimensions of dependence and their correlates were assessed by items in the test with dichotomous "yes" or "no" responses. Each affirmative response corresponded to one point. If a participant had more than four positive responses, this indicated a likelihood of dependence on video games.

The test was first translated from French into Arabic. According to homogeneity indices, the 9 items showed a high correlation ($p < .001$). The scale's internal consistency coefficient (Cronbach's α) was acceptable for a nine-item scale, at $\alpha = .90$.

Definition and application of the Aggressive Behavior Scale

The Aggression Questionnaire, created by Buss and Perry in 1992, was used to assess four main dimensions of aggression (physical, verbal, anger, and hostility) in a sample of 1253 college students taking introductory psychology courses. The Buss-Perry Questionnaire contains a total of 29 questions assessing different aspects of aggression. The original version of the scale exhibits adequate psychometric properties in terms of internal consistency, test-retest reliability, convergent validity and discriminant validity. A confirmatory factor analysis yielded four main factors. The Arabic version of the questionnaire was initially translated into Arabic by researchers Moataz Sayd Abdullallah and Saleh Abo Abat. Following these adjustments, the number of items was reduced to 28. The results showed that the scale had a high level of validity and reliability (Cronbach's α of .78, (Belhacini & Khada, 2018)), the higher the score, the higher the aggressiveness. The scale's reliability in the present study was very high (Cronbach's $\alpha = .85$).

Results

Correlation between video game addiction and aggressive behavior

Table 1

Pearson correlation coefficient scale between video game addiction and aggressive behaviour

Variables	1	2
1. Addiction to video games	—	
2. Aggressive behaviour	.56**	—

Note. N=154.

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

Pearson's correlation coefficient showed that the relationship between video game addiction and aggressive behavior in school-going adolescents was significant at $p < .001$, as shown in Table 1, indicating that the more adolescents are addicted to video games, the higher

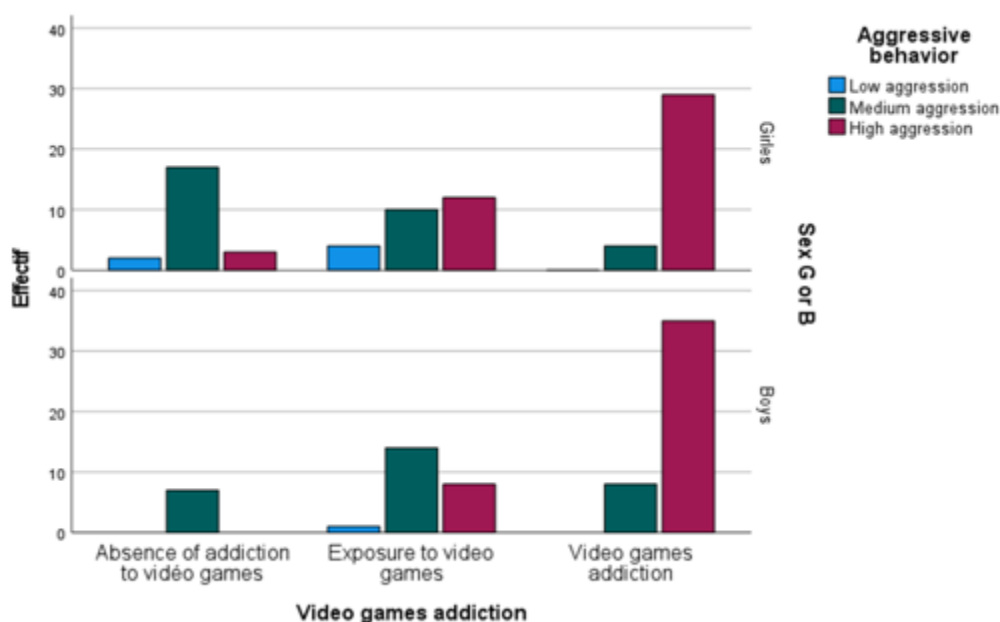
the level of their aggressive behavior. In other words, playing violent video games is associated with increased aggression.

Gender moderator analyses

Gender differences in video game addiction and aggression were examined using the T-test for two independent samples. The distribution of participants who showed problematic video game use indicated that boys are likely to show this problematic engagement with video games. Specifically, in our sample, 52.6% of boys and 47.4% of girls showed problematic video game use.

Figure 1

Graphical presentation of gender differences in video game addiction and aggressive behaviour



According to figure 1, the difference is not statistically significant: the degree of video game addiction in favor of the male sex ($t(150) = 2.94, p > .05$), of the adolescents who participated in the study.

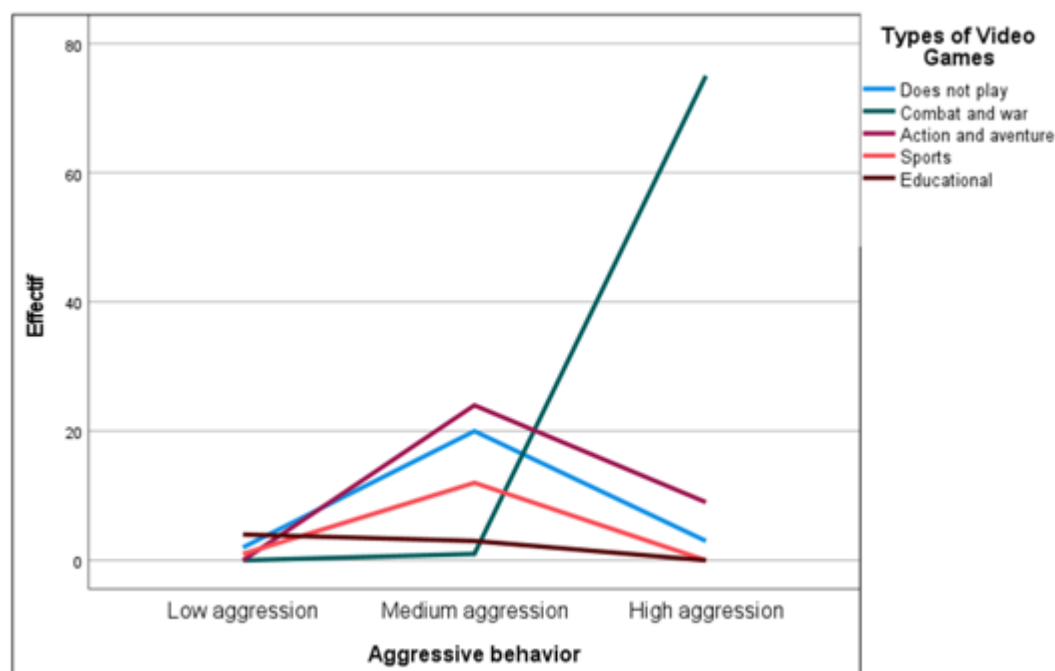
According to the results of applying the T-test for two independent homogeneous samples, estimated at (1.13) at the significance level (.02) which is less than (.05), indicating that there are statistically significant differences in the degrees of aggression among school-going adolescents in favor of the male sex.

Type of video games most frequently used

Based on the ANOVA results, according to which participants differ in the type of video games used by students. Figure 2 below shows that there are statistically significant differences in the degree of aggressiveness among school-going adolescents, according to their type of video game (combat and war, action and adventure, sports, educational); video games of the combat and war type are the most consumed ($F = 91.86, p < .005$).

Figure 2

Graphic presentation of the types of video games consumed in relation to the aggressive behaviour variable



Discussion

The expected results point to a probable relationship between video game addiction and aggressive behavior, within the framework of data extracted from approved research tools; Pearson's correlation coefficient shows, that there is an average and statistically significant positive correlation: the more adolescents present an addiction to video games, the higher their aggressive behavior. On the one hand, numerous studies have addressed this controversial relationship, even in other international contexts (Bodi et al., 2023; Kim et al., 2022; Reynaldo et al., 2021; Suziedelyte, 2021; Yilmaz et al., 2023; Zhang et al., 2021). In this respect, we find a study by (Yilmaz et al., 2023) that reveals the existence of a statistically significant positive correlation between video game playing and aggression, as well as anxiety related to social appearance. The latter variable was identified by the study as being closely linked to aggression. Furthermore, the results revealed that aggression has an indirect effect on video game-related disorders among students. In the same context, an experimental study (Zhang et al., 2021) examined the short-term effects of violent video games on aggressive cognitions and aggressive behaviors among players and observers exposed to the same violent content.

Although the results showed that gamers displayed more aggressive cognitions and behaviors than observers. It is also worth mentioning a systematic review (Lérida-Ayala et al., 2023) linking video games to the causes of behavioral disorders among adolescents, with researchers drawing on SCOPUS, Web of Science and PubMed databases. In fact, the results confirm that excessive use of video games leads to sleep disorders and aggressive behavior, as well as a drop in school performance. In addition, social relationships are also affected by poor development of emotional intelligence.

What distinguishes these studies from others is the consensus that excessive video gaming has a negative impact on several levels, especially aggressive behavior, which is at

the heart of our concerns. This reinforces our research hypothesis: The Moroccan context is no different. Above all, we must not forget that the COVID-19 crisis has made a remarkable contribution to the growing spread of video games (De Rostolan & Bonnaire, 2022; King et al., 2022). In this study, differences in degrees of video game addiction and aggression among school-going adolescents were in favor of the male sex. In the same vein, another study maintains that boys aged 14 and over play video games up to five times more than girls, while girls are more present on social networks (Leonhardt & Overå, 2021). Other studies also point in the same direction, demonstrating that problematic video game use is significantly higher among boys than girls, and that male gender is associated with this use (Han et al., 2020; Steven et al., 2021; Uçur & Dönmez, 2021). Furthermore, gender can positively and significantly predict the initial state and rate of progression of Internet gaming disorder in young adolescents (Wan et al., 2021). In similar studies, adolescent males have been found to score above the threshold for internet gaming disorder symptoms more frequently than females (Phan et al., 2020; Yang et al., 2020). This difference can be explained by the fact that the three types of maladaptive cognitions related to online gaming all play a partially significant role as mediators in the gender difference in internet gaming disorder prevalence among adolescents (Yu et al., 2021).

With regard to aggression, most studies examining the association between gender and aggressive behavior admit that boys were more aggressive than girls (Alhazzaa et al., 2023). Thus, during the developmental period, boys more frequently displayed characteristics such as high impulsivity, deficient inhibitory control and aggressive behavior, compared with girls. These observations suggest the presence of potential risk factors in the development of video game-related problems (Dong & Potenza, 2022). Another similar study confirmed that boys showed more aggressive behavior than girls, but only in the violent video game condition (Zhang et al., 2021). Univariate tests based on gender revealed that boys scored significantly higher on physical aggression than girls. No significant gender differences were observed for the hostility, verbal aggression and anger subscales (Cabras et al., 2019). In contrast, other studies found that boys and girls had no significant difference in the frequency of their actual aggressive behavior, and that girls' aggressive behavior was more strongly influenced by their video game playing than boys' (Cho et al., 2017; Sun & Sun, 2021).

We found that there were statistically significant differences in the degree of aggression in school-going adolescents, depending on their type of video game, particularly the type of combat and war. Previous studies indicate that participants who played violent video games showed minor accuracy in recognizing anger on faces that changed from a neutral expression to anger. This effect of video game manipulation was particularly evident in boys with high levels of aggression (Denson et al., 2020). Shao & Wang's 2019 study revealed that this type of game can lead adolescents to acquire, repeat and reinforce aggression-related knowledge patterns, such as aggressive beliefs and attitudes, aggressive perceptual patterns, aggressive anticipation patterns, aggressive behavior scripts and desensitization to aggression (Shao & Wang, 2019). In other words, the violent content of games exerts a main effect on aggressive behavior (Groves et al., 2019). Exposure to violent games leads to an increase in aggressive behavior, in contrast to exposure to neutral games (Zhang et al., 2021). In another study, preference for action games was found to be strongly correlated with the affect experienced during play.

Consequently, it seems that action games are both rewarding and a source of frustration (Von Der Heiden et al., 2019). In addition, massively multiplayer online role-playing games (MMORPGs) are by far the most studied type of game and are consistently associated with gaming disorder, as are first-person/third-person shooters (FPS/TPS), real-time strategy games (RTS) and multiplayer online battle games (MOBAs) (Király et al., 2023; Müller et al., 2015; Rehbein et al., 2021; Derevensky et al., 2019).

Conclusion

The aim of this work was to show the nature of the likely relationship between video game addiction and aggressive behavior, as well as the gender differentiation characteristics and type of video games to which adolescents are attracted. Yet the results concluded that there was a mean and statistically significant positive correlative relationship between video game addiction and aggressive behavior. Similarly, the study sample tended to prefer playing violent video games to other types of game. Furthermore, the results also showed the existence of non-statistically significant gender differences in video game addiction in favor of boys, as well as statistically significant differences in degrees of aggression in boys as well. Although it should be noted that these results are still within the limits of research, depending on the method used, the sample chosen and the scales applied. On the one hand, many of the aforementioned studies have addressed several aspects of the subject, especially as most of them are consistent with the results of the study, especially the fact that video games contribute to an increase in aggressive behavior among adolescents, particularly when they are addicted to games of a violent nature. On the other hand, it is important to stress that this article attempts to address the phenomenon and highlight its characteristics in a descriptive way in the Moroccan national context, emphasizing the importance of paying attention to video game addiction and the possible psychological disorders that could increase in parallel with the rise in the number of addicts.

Therefore, it is necessary to increase the number of researchers interested in studying the different facets of the subject in order to achieve safe, healthy and regulated use among young consumers.

Limits and prospects

These recent years have highlighted significant problems associated with video game addiction, underscoring the urgent need for therapeutic intervention programs and for games to be adapted to meet the needs of adolescents, while ensuring regulated and conscious use. In addition, the need for in-depth studies on the dynamics of video games in the national context by researchers, particularly on the issue of massively multiplayer online role-playing games. Not forgetting the importance of regulating the marketing of games in Morocco and defining minimum educational and ethical conditions before they reach teenage consumers, in a context of no law or public policy to regulate this vital sector, especially longitudinal research to understand how video games affect aggressive behavior in depth, and the various potential factors involved in this process.

References

- AAP Council on Communications and Media. (2016). Media Use in School-Aged Children and Adolescents. *Pediatrics*, 138(5), pp. 2-3. <https://doi.org/10.1542/peds.2016-2592>
- Alhazzaa, S. A., Alwohaibi, R. N., Almusaillet, L. I., Alshrefy, A. J., Almainoni, R. A., & Menezes, R. G. (2023). Video games and among children and adolescents in the Arab world: A systematic review. *Acta Biomedica*, 94(2), p. 26. <https://doi.org/10.23750/abm.v94i2.14019>
- American Psychological Association. (2020). APA Resolution on Violent Video Games. American Psychological Association, (February), p. 1. <https://www.apa.org/about/policy/resolution-violent-video-games.pdf>
- Belhacini, W., & Khada, F. E. (2018). The relationship between the ability to solve problems and the aggressive behavior of a sample of adolescents at risk. *Basic Education College Magazine For Educational and Humanities Sciences*, 39, 506-512. <https://www.iasj.net/iasj/article/145710>
- Bodi, G., Maintenant, C., & Pennequin, V. (2023). Videogamers : Who are they ? Who plays what ? What are the risks? *Neuropsychiatrie de l'Enfance et de l'Adolescence*, 71(3), pp. 140-141. <https://doi.org/10.1016/j.neurenf.2023.01.004>
- Cabras, C., Cubadda, M. L., & Sechi, C. (2019). Relationships among violent and non-violent video games, anxiety, self-esteem, and aggression in female and Male gamers. *International Journal of Gaming and Computer-Mediated Simulations*, 11(3), p. 24. <https://doi.org/10.4018/IJGCMS.2019070102>
- Cho, H., Lee, S. K., Choi, J. S., Choi, S. W., & Kim, D. J. (2017). An exploratory study on association between Internet game contents and aggression in Korean adolescents. *Computers in Human Behavior*, 73, 257-262. <https://doi.org/10.1016/j.chb.2016.12.077>
- De Rostolan, T., & Bonnaire, C. (2022). Impact of the COVID-19 pandemic on gaming use according to personality and type of passion in adults. *Psychologie Francaise*, 67(4), pp. 484-485. <https://doi.org/10.1016/j.psfr.2022.04.002>
- Denson, T. F., Dixson, B. J. W., Tibubos, A. N., Zhang, E., Harmon-Jones, E., & Kasumovic, M. M. (2020). Violent video game play, gender, and trait aggression influence subjective fighting ability, perceptions of men's toughness, and anger facial recognition. *Computers in Human Behavior*, 104, Article 106175. <https://doi.org/10.1016/j.chb.2019.106175>
- Derevensky, J. L., Hayman, V., & Lynette Gilbeau. (2019). Behavioral Addictions: Excessive Gambling, Gaming, Internet, and Smartphone Use Among Children and Adolescents. *Pediatric Clinics of North America*, 66(6):1163-1182. <https://doi.org/10.1016/j.pcl.2019.08.008>
- Dong, G. H., & Potenza, M. N. (2022). Considering gender differences in the study and treatment of internet gaming disorder. *Journal of Psychiatric Research*, 153, 25-39. <https://doi.org/10.1016/j.jpsychires.2022.06.057>
- Fumero, A., Marrero, R. J., Bethencourt, J. M., & Peñate, W. (2020). Risk factors of internet gaming disorder symptoms in Spanish adolescents. *Computers in Human Behavior*, 111, Article 106416. <https://doi.org/10.1016/j.chb.2020.106416>
- Groves, C. L., Plante, C., & Lishner, D. A. (2019). The interaction of contextual realism and fantasy tendency on aggressive behavior following violent video game play: An indirect test of violent content effects. *Computers in Human Behavior*, 98, 134-139. <https://doi.org/10.1016/j.chb.2019.04.006>
- Han, H., Jeong, H., Jo, S. J., Son, H. J., & Yim, H. W. (2020). Relationship between the experience of online game genre and high risk of Internet gaming disorder in Korean adolescents. *Epidemiology and Health*, 42, 1-7. <https://doi.org/10.4178/epih.e2020016>
- Kim, H. S., Son, G., Roh, E. B., Ahn, W. Y., Kim, J., Shin, S. H., ... Choi, K. H. (2022). Prevalence of gaming disorder: A meta-analysis. *Addictive Behaviors*, 126, 9-10. <https://doi.org/10.1016/j.addbeh.2021.107183>
- King, D. L., Achab, S., Higuchi, S., Bowden-Jones, H., Müller, K. W., Billieux, J., ... Delfabbro, P. H. (2022). Gaming disorder and the COVID-19 pandemic: Treatment demand and service delivery challenges. *Journal of Behavioral Addictions*, 11(2), 243-248. <https://doi.org/10.1556/2006.2022.00011>

- Király, O., Koncz, P., Griffiths, M. D., & Demetrovics, Z. (2023). Gaming disorder : A summary of its characteristics and aetiology. *Comprehensive Psychiatry*, 122, 152376. <https://doi.org/10.1016/j.comppsy.2023.152376>
- Kircaburun, K., Pontes, H. M., Stavropoulos, V., & Griffiths, M. D. (2020). A brief psychological overview of disordered gaming. *Current Opinion in Psychology*, 36, 38-43. <https://doi.org/10.1016/j.copsy.2020.03.004>
- Leonhardt, M., & Overå, S. (2021). Are There Differences in Video Gaming and Use of Social Media among Boys and Girls?-A Mixed Methods Approach. *International Journal of Environmental Research and Public Health*, 18(11), 6085. <https://doi.org/10.3390/ijerph18116085>
- Leouzon, H., Alexandre, J.-M., Fatséas, M., & Auriacombe, M. (2019). L'addiction aux jeux vidéo dans le DSM-5, controverses et réponses relatives à son diagnostic et sa définition. *Annales Médico-psychologiques, revue psychiatrique*, 177(7), 610-623. <https://doi.org/10.1016/j.amp.2019.03.013>
- Lérida-Ayala, V., Aguilar-Parra, J. M., Collado-Soler, R., Alférez-Pastor, M., Fernández-Campoy, J. M., & Luque-de la Rosa, A. (2023). Internet and Video Games : Causes of Behavioral Disorders in Children and Teenagers. *Children*, 10(1), p. 86. <https://doi.org/10.3390/children10010086>
- Liu, D., Lemmens, J., Hong, X., Li, B., Hao, J., & Yue, Y. (2022). A network analysis of internet gaming disorder symptoms. *Psychiatry Research*, 311, p. 1. <https://doi.org/10.1016/j.psychres.2022.114507>
- Müller, K. W., Janikian, M., Dreier, M., Wölfling, K., Beutel, M. E., Tzavara, C., ... Tsitsika, A. (2015). Regular gaming behavior and internet gaming disorder in European adolescents : Results from a cross-national representative survey of prevalence, predictors, and psychopathological correlates. *European Child and Adolescent Psychiatry*, 24(5), 565-574. <https://doi.org/10.1007/s00787-014-0611-2>
- Phan, O., Prieur, C., Bonnaire, C., & Obradovic, I. (2020). Internet gaming disorder : Exploring its impact on satisfaction in life in PELLEAS adolescent sample. *International Journal of Environmental Research and Public Health*, 17(1), p. 6. <https://doi.org/10.3390/ijerph17010003>
- Przybylski, A. K., & Weinstein, N. (2019). Violent video game engagement is not associated with adolescents' aggressive behaviour : Evidence from a registered report. *Royal Society Open Science*, 6(2), 171474. <https://doi.org/10.1098/rsos.171474>
- Rehbein, F., King, D. L., Staudt, A., Hayer, T., & Rumpf, H. J. (2021). Contribution of Game Genre and Structural Game Characteristics to the Risk of Problem Gaming and Gaming Disorder : A Systematic Review. *Current Addiction Reports*, 8(2), 263-281. <https://doi.org/10.1007/s40429-021-00367-7>
- Reynaldo, C., Christian, R., Hosea, H., & Gunawan, A. A. S. (2021). Using Video Games to Improve Capabilities in Decision Making and Cognitive Skill : A Literature Review. *Procedia Computer Science*, 179, 211-221. <https://doi.org/10.1016/j.procs.2020.12.027>
- Richard, J., Temcheff, C. E., & Derevensky, J. L. (2020). Gaming Disorder Across the Lifespan : A Scoping Review of Longitudinal Studies. *Current Addiction Reports*, 7(4), 561-587. <https://doi.org/10.1007/s40429-020-00339-3>
- Richard, J., Temcheff, C., Fletcher, É., Lemieux, A., Derevensky, J., & Déry, M. (2022). An empirical investigation of the externalizing and internalizing pathways to disordered gaming behavior: A longitudinal study across childhood and adolescence. *Computers in Human Behavior*, 128, Article 107096. <https://doi.org/10.1016/j.chb.2021.107096>
- Shao, R., & Wang, Y. (2019). The relation of violent video games to adolescent aggression: An examination of moderated mediation effect. *Frontiers in Psychology*, 10, Article 384. <https://doi.org/10.3389/fpsyg.2019.00384>
- Stevens, M. W. R., Dorstyn, D., Delfabbro, P. H., & King, D. L. (2021). Global prevalence of gaming disorder : A systematic review and meta-analysis. *Australian and New Zealand Journal of Psychiatry*, 55(6), 553-568. <https://doi.org/10.1177/0004867420962851>
- Sun, Y., & Sun, M. (2021). How peer influence mediates the effects of video games playing on adolescents' aggressive behavior. *Children and Youth Services Review*, 130, Article 106225. <https://doi.org/10.1016/j.childyouth.2021.106225>

- Sussman, C. J., Harper, J. M., Stahl, J. L., & Weigle, P. (2018). Internet and video game addictions: Diagnosis, epidemiology, and neurobiology. *Child and Adolescent Psychiatric Clinics of North America*, 27(2), 307–326. <https://doi.org/10.1016/j.chc.2017.11.015>
- Suziedelyte, A. (2021). Is it only a game ? Video games and violence. *Journal of Economic Behavior and Organization*, 188, 25-26. <https://doi.org/10.1016/j.jebo.2021.05.014>
- Tejeiro Salguero, R. A., & Bersabé Morán, R. M. (2002). Measuring problem video game playing in adolescents. *Addiction*, 97(12), 1601-1606. <https://doi.org/10.1046/j.1360-0443.2002.00218.x>
- Uçur, Ö., & Dönmez, Y. E. (2021). Problematic internet gaming in adolescents, and its relationship with emotional regulation and perceived social support. *Psychiatry Research*, 296, 113678. <https://doi.org/10.1016/j.psychres.2020.113678>
- Von Der Heiden, J. M., Braun, B., Müller, K. W., & Egloff, B. (2019). The association between video gaming and psychological functioning. *Frontiers in Psychology*, 10, 1731. <https://doi.org/10.3389/fpsyg.2019.01731>
- Wang, R., Yang, S., Yan, Y., Tian, Y., & Wang, P. (2021). Internet Gaming Disorder in Early Adolescents : Gender and Depression Differences in a Latent Growth Model. *Healthcare*, 9(9), 1188. <https://doi.org/10.3390/healthcare9091188>
- Yang, X., Jiang, X., Mo, P. K. H., Cai, Y., Ma, L., & Lau, J. T. F. (2020). Prevalence and interpersonal correlates of internet gaming disorders among Chinese adolescents. *International Journal of Environmental Research and Public Health*, 17(2), 579. <https://doi.org/10.3390/ijerph17020579>
- Yilmaz, R., Sulak, S., Griffiths, M. D., Gizem, F., & Yilmaz, K. (2023). Journal of Affective Disorders Reports An Exploratory Examination of the Relationship Between Internet Gaming Disorder , Smartphone Addiction , Social Appearance Anxiety and Aggression Among Undergraduate Students. *Journal of Affective Disorders Reports*, 11, 4-5. <https://doi.org/10.1016/j.jadr.2023.100483>
- Yu, Y., Mo, P. K. H., Zhang, J., Li, J., & Lau, J. T. F. (2021). Why is Internet gaming disorder more prevalent among Chinese male than female adolescents? The role of cognitive mediators. *Addictive Behaviors*, 112, 106637. <https://doi.org/10.1016/j.addbeh.2020.106637>
- Zhang, Q., Cao, Y., & Tian, J. J. (2021). Effects of violent video games on players' and observers' aggressive cognitions and aggressive behaviors. *Journal of Experimental Child Psychology*, 203, pp. 7-9. <https://doi.org/10.1016/j.jecp.2020.105005>

Working Memory, Cognitive Flexibility and Planning in Autism: Links with Symptomatology, Theory of Mind and Central Coherence

<https://doi.org/10.57642/AJOPSY944>

Safae Sedjari

safae.sedjari@usmba.ac.ma

Department of psychology, Faculty of Letters and Human Sciences Dhar El Mahraz, Sidi Mohamed Ben Abdellah University, Fes, Morocco

Received: 20/12/2024

Mohammed El-Mir

mohammed.elmir1@usmba.ac.ma

Accepted: 30/12/2024

Published: 31/12/2024

Abstract

Executive dysfunction appears to be an omnipresent characteristic in autism spectrum disorder. Autistic symptomatology is often attributed to impaired executive functions. However, there is no consensus on the functions that are impaired or preserved in this disorder. The theory of mind and central coherence are considered among the main theories that have been developed to explain the particularities of autism. To establish the links between these different aspects, this article aims to highlight three executive functions, namely: working memory, cognitive flexibility and planning, while exposing their neurocognitive relationship with autistic symptoms on the one hand, and with the theories mentioned on the other.

Keywords: autism spectrum disorder, working memory, cognitive flexibility, planning, theory of mind, central coherence

Mémoire de Travail, Flexibilité Cognitive et Planification dans l'Autisme : Liens avec la Symptomatologie, la Théorie de l'Esprit et la Cohérence Centrale

Safae Sedjari

safae.sedjari@usmba.ac.ma

Département de Psychologie, Faculté des Lettres et des Sciences Humaines Dhar El Mahraz, Université Sidi Mohamed Ben Abdellah, Fes, Maroc.

Reçu : 20/12/2024

Mohammed El-Mir

mohammed.elmir1@usmba.ac.ma

Accepté : 30/12/2024

Publié : 31/12/2024

Résumé

Le dysfonctionnement exécutif semble être une caractéristique omniprésente dans le trouble du spectre de l'autisme (TSA). La symptomatologie autistique est souvent attribuée à des altérations des fonctions exécutives (FEs). Néanmoins, il n'y a pas d'unanimité sur les fonctions altérées ou préservées dans ce trouble. La théorie de l'esprit (TE) et la cohérence centrale (CC) sont considérées parmi les théories principales qui ont été développées pour expliquer les particularités de l'autisme. Dans le but d'établir les liens entre ces différents aspects, cet article vise à mettre en lumière trois fonctions exécutives : la mémoire de travail (MT), la flexibilité cognitive et la planification, tout en exposant leur relation, d'une part avec les symptômes autistiques, et d'autre part avec les théories mentionnées.

Mots-clés: trouble du spectre de l'autisme, mémoire de travail, flexibilité cognitive, planification, théorie de l'esprit, cohérence centrale