

Association between video gaming habits and psychological distress among adolescents

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Background & Objectives

- The prevalence of video gaming habits has increased rapidly in recent years among adolescents and young adults, raising concerns about its potential impact on mental health.
- Understanding the relationship between digital gaming habits and psychological distress is crucial for developing effective prevention and intervention strategies.
- The objective of this study was to comprehensively summarize the existing literature on the association between digital gaming habits and psychological distress, with a focus on depression and anxiety among adolescents.

Method

- Study design : A systematic review
- Databases: PubMed, PsychArticles and ScienceDirect
- Population: Adolescents
- Study selection: Observational studies that reported on relationship between video/computer gaming and depression or anxiety
- Quality assessment: Newcastle Ottawa scale for observational studies
- Study outcome: Depressive symptoms or anxiety

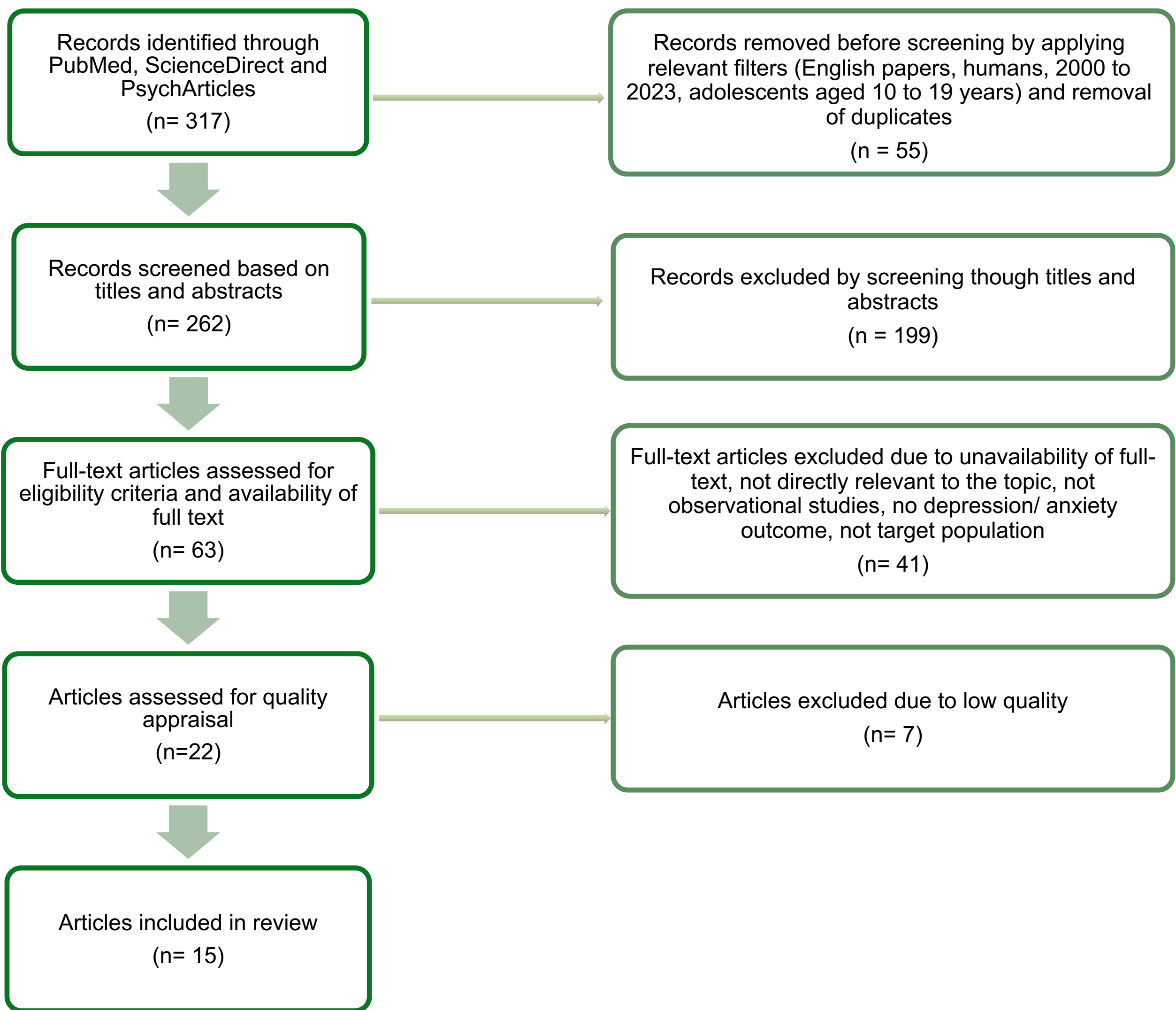


Figure 1: PRISMA flow diagram for included studies

Results

Table 1 Summary of included studies				
Study/year	Study design	Study population	Survey instrument	Findings
Brian et al., 2009	Longitudinal study in USA	N= 4142 Mean age: 17.8 years	Depression: Center for Epidemiologic Studies Depression scale	Hours of exposure to computer games were not independently associated with high levels of depressive symptoms [OR: 1.04 (0.89 – 1.22)]. However, its use in addition to television exposure had greater odds of developing depression [OR: 1.05 (1.004 – 1.10).
Tortolero et al., 2014	Cross-sectional study in USA	N= 5147 Mean age: 11.2 years	Depression: Major Depressive Disorder Scale of the DISC Predictive Scale	Students who reported playing high violence video games for ≥ 2 hours per day had significantly more depressive symptoms (Cohen's <i>d</i> =0.16) than those who reported playing low-violence video games for <2 hours per day.
Hellstrom et al., 2015	Cross-sectional study in Sweden	N= 7,757 Age range: 13 – 18 years	Depression: Survey of Adolescent Life in Västmanland 2008	Multiplayer online gaming was associated with depressive symptoms (OR:1.066, 95% CI 1.028–1.104, P < 0.001). Increased gaming time (i.e., gaming hours per day) on weekdays elevated the probability of depressive symptoms.
Manniko et al., 2015	Cross-sectional study in Finland	N= 293 Mean age: 18.7 years	Problematic gaming behavior: Game Addiction Scale	Multiple linear regression indicated that the amount of weekly gaming (β = 0.09, p < 0.001) and depression (β = 0.9, p <0.005) predicted increased problematic gaming symptoms.
Maras et al., 2015	Cross-sectional study in Canada	N= 2482 Mean age: 14.1 years	Depression: Children's Depression Inventory Anxiety: Multidimensional Anxiety scale for children	Video game playing (β = 0.13, p < .001) and computer use (β = 0.17, p < 0.001) were associated with higher depressive symptoms. Video game playing (β = 0.11, p < 0.001) was associated with severity of anxiety.
Gary et al., 2015	Cross-sectional study in Canada	N= 358 Mean age: 15.6 years	Depression: Children's Depression Inventory (CDI)	Time spent playing video games (β =0.13, p = 0.05) and recreational computer time (β =0.18, p =0.006) was associated with depressive symptoms.
Kim et al., 2016	Cross-sectional study in Korea	N= 4539 Age range: 11 – 15 years	Depression: Center for Epidemiologic Studies Depression Scale Revised (CESD-R)	Video game is significantly associated with the main outcome of depression (β = 0.026; p < 0.05), the time spent playing online video games is related to greater depression
Mikuska et al., 2017	Longitudinal study in USA	N= 9,421 adolescents Mean age: 15.9 years	Depression: Center for Epidemiologic Studies Depression Scale (CES-D)	Excessive gaming predicted increases in depressive symptoms (β = .04, p = .007); and in turn, depressive symptoms predicted decreases in gaming over time (β = -.09, p < .001)
Tamura et al., 2017	Cross-sectional study in Japan	N= 295 Mean age: 16.2 years	Depression: Center for Epidemiologic Studies Depression Scale	Hours spent using mobile phone for video games was not linked with depression.
Nishida et al., 2019	Cross-sectional study in Japan	N= 295 Mean age 16.2 years	Depression: Center for Epidemiologic Studies Depression Scale (CES-D)	Male students spent more hours playing games than female students, and their smartphone use was not correlated with depression.
Zink et al., 2020	A school-based longitudinal cohort study in USA	N= 2717 Mean age: 14.5 years	Depression: Center for Epidemiologic Studies Depression Scale (CES-D)	Reciprocal associations between computer/video games use and higher negative affect symptoms were observed (computer/video games predicting negative affect, β = 0.06, 95% CI 0.01-0.11, p = 0.01; negative affect predicting computer/video games, OR 1.29, 95% CI 1.06-1.58, p =.01
Li et al., 2021	Longitudinal cohort study in Canada	N= 2026 Mean age: 11.3 years	Depression: Revised Children's Anxiety and depression scale (RCADS)	Higher levels of daily video game time (4-5hr) were associated with higher levels of depression symptoms [4.64 (3.27 to 6.02) <0.001].
Chen et al., 2022	Cross sectional study in China	N= 1331 Age range: 11 – 16 years	Anxiety: Zung Self-Rating Anxiety Scale	≥ 6 hours of video game time was positively associated with anxiety symptoms (OR: 5.25, 95% CI: 1.86 –14.84, p < 0.005)
Wang et al., 2022	Longitudinal study in China	N=2000 Age range: 10 – 15 years	Depression: Center for Epidemiologic Studies Depression Scale (CES-D)	Initial internet gaming disorder symptoms positively predicted follow-up depression symptoms.
Wei et al., 2022	Cross-sectional study in China	N= 1494 Age range: 12 – 18 years	Anxiety: Generalized Anxiety Disorder (GAD-7)	Gaming disorder and gender were positively related (OR: 1.689 – 3.849, all p < 0.001). GD is a very strong risk factor for anxiety.

Conclusion

Excessive video game time in adolescents is linked with increased risk of depression and anxiety over time. Given the profusion and disparity of the results, additional studies are needed to clarify elements such as the game content for example low or high violence games, or the interaction of online gamers with other multiplayer which may play role in development of psychological distress.