Title: Social norms and Internet Gaming Disorder among adolescents: The role of Internet use coping motives

Federica Angelini[a]*, Erika Pivetta[a]*, Claudia Marino[a,b], Natale Canale[a], Marcantonio M. Spada[b] & Alessio Vieno[a]

[a] Department of Developmental and Social Psychology, University of Padova, via Venezia 8, 35131 Padova, Italy.

[b] Division of Psychology, School of Applied Sciences, London South Bank University, 103 Borough Road London SE1 0AA, United Kingdom.

*= shared first author, these two authors contributed equally to this work

federica.angelini.1@phd.unipd.it ORCID: https://orcid.org/0000-0002-4077-0590

erika.pivetta@phd.unipd.it ORCID: https://orcid.org/0000-0003-0536-7453

claudia.marino@unipd.it ORCID: https://orcid.org/0000-0002-1127-3907

natale.canale@unipd.it ORCID: http://orcid.org/0000-0002-6032-0490

spadam@lsbu.ac.uk ORCID: https://orcid.org/0000-0003-4548-9578

alessio.vieno@unipd.it ORCID: https://orcid.org/0000-0003-4417-4822

Corresponding author: Dr Federica Angelini, Department of Developmental and Social Psychology, University of Padova, Via Venezia, 8 – 35131- Padova, Italy, e-mail: federica.angelini.1@phd.unipd.it

Running title: Social norms and adolescent gaming

Key words: Internet Gaming Disorder; social norms; gaming frequency; coping; adolescence.

Word count: 2317 words.

Data availability statement: The data that support the findings of this study are available from the corresponding author, [FA], upon reasonable request.

Funding statement: No financial support was received for this study.

Conflict of interest disclosure: The authors declare no conflict of interest.

Ethics approval statement: This study did not involve human and/or animal experimentation.

Data of first submission: 01/04/2022

ABSTRACT

Background and Aims: Excessive gaming leading to personal and social impairment has been officially recognized as Internet Gaming Disorder (IGD). Although several studies have documented that peer influences constitute a relevant risk factor for adolescent problematic behaviours, little research is currently available on IGD. The aim of this study was to examine the contribution of social norms and friends' gaming frequency on participants' own gaming frequency and IGD, by testing potential differences among groups with low vs. high motive to use the Internet (e.g., online gaming) as a coping strategy.

Methods: A survey was administered to four hundred and seventy adolescent gamers (mean age = 15.49 years; SD = 1.05 years; 77.9% males). Data for this cross-sectional study were collected in 2018 in Italy. A theoretical model was tested through path analysis and multi-group comparisons were performed.

Results: Path analysis revealed that social norms and friends' gaming frequency were positively associated to participants' gaming behaviours and IGD. In addition, the pattern of relationships tested was similar between groups (low vs. high coping motive), except for the association between social norms and gaming frequency, which was significant only for adolescents with high coping motive.

Discussion and Conclusions: Our findings confirmed the relative importance of peer influences on adolescents' gaming behaviours and IGD and showed that adolescents who rely more on online gaming to cope with negative affect may be more vulnerable to social influence processes than other peers. These findings may provide useful indications for prevention programs targeting adolescent IGD.

Key words: Internet Gaming Disorder; social norms; gaming frequency; coping; adolescence.

INTRODUCTION

Internet Gaming Disorder (IGD) has been recognized as a dysfunctional pattern of gaming activities characterized by addictive-like symptoms including: (1) impaired control (e.g., duration, frequency of gaming); (2) increased priority given to gaming; (3) continued use despite adverse consequences in daily life (APA, 2013; WHO, 2018). Since several studies have documented that peer influences constitute a relevant risk factor for adolescent problematic behaviours (e.g., Albert & Steinberg, 2011), the aim of this study was to examine the contribution of social norms and friends' gaming frequency on participants' own gaming frequency and IGD.

The immersive environments of videogames appear attractive for adolescents, who constitute a high-risk category for IGD (Paulus et al., 2018), and may contribute to increase the duration of gaming sessions due to higher levels of in-game needs satisfaction (Bender et al., 2020). According to the Compensatory Internet Use Theory (Kardefelt-Winther, 2014), the engagement in Internet-related activities (e.g., playing online) might be a strategy used either to satisfy un-met real life needs or to cope with negative affect arising from stressful situations. It has been shown that such escapism-coping motives (i.e., playing to escape from problems and improve emotional states) are strongly associated with adolescent IGD (López-Fernández et al., 2021). It was also found that playing to avoid one's worries and social motives were significantly associated with problematic gaming behaviours in youth (Männikkö et al., 2017). Interestingly, as noticed by the authors, the "social" force driving adolescents' involvement in video gaming may not only derive from their need for socialization, which is not problematic per se, but it may also stem from peer pressure to play. This is consistent with a qualitative study involving young problematic gamers, which revealed that friends' invitation to play was one of the strongest risk factors (Shi et al., 2019).

However, research about peer influence in the context of adolescent IGD is surprisingly scarce. One previous study (Haagsma et al., 2013) revealed that higher perceived frequency of

classmates playing excessively constituted a risk factor for excessive gaming, which predicted, in turn, problematic game use. Similarly, peers' positive attitudes towards online gaming and their own gaming frequency positively predicted Internet gaming addiction in students (Wu et al., 2016). As postulated by the Social Influence Theory (Kelman, 1974), social norms impacting individual behaviours entail several social processes, including the influence of others' expectations (and compliance) towards one's engagement in an activity considered valuable by the group members and a process of internalization and alignment of the goals established within the group with one's own goals.

In the present study, group norms and expectations about gaming (henceforth "social norms") refer to the extent to which gaming is a valued, reinforced, and expected activity within the group of friends. We hypothesized that social norms would be associated with adolescents' IGD both directly and indirectly via higher gaming frequency by participants. Moreover, friends' frequency of gaming was conceptualized in terms of adolescents' perception of the frequency with which their friends play videogames (paralleling the evaluation of their own frequency of gaming). Consistently with previous findings (Haagsma et al., 2013), we expected that higher perceived gaming frequency by friends would be associated with higher gaming frequency by participants which, in turn, would be associated with IGD.

A further aim of the present study was to expand the extant literature, by examining the potential differences in the relationships between social norms, gaming frequency and IGD among adolescents with low vs. high motive to use the Internet to cope with negative affect (henceforth "coping via Internet"). Indeed, while gamers with high coping via Internet tend to be considered at major risk of IGD (López-Fernández et al., 2021), to the best of our knowledge, no research has explored whether adolescents driven by such internal need to use the Internet differ from peers with lower coping via Internet in terms of susceptibility to normative social processes involved in IGD.

MATERIAL AND METHODS

Participants and Procedure

The whole convenience sample included a total of 828 adolescents (54.7% males) attending public secondary schools in Italy. For the purposes of the current study only participants who reported using videogames were considered for data analysis; the final sample included 470 adolescents (77.9% males) with an average age of 15.49 years (SD = 1.05; age range = 13-19 years). Participants completed a series of anonymous self-report questionnaires about adolescents' online behaviors. Data were collected in 2018. Part of these data, not related to the current study objectives, have been previously used in another study (Marino et al., 2020).

Measures

Internet Gaming Disorder. IGD was assessed with the Internet Gaming Disorder Scale - Short-Form (IGDS9-SF) (Pontes et al., 2015), validated for Italian adolescents by Monacis and colleagues (2016). The scale includes 9 items, according to the nine IGD criteria in DSM-5 (APA, 2013). Items were rated on a 5-point Likert scale (1 "never" to 5 "very often") so that higher scores indicate higher level of engagement in IGD. The Cronbach's alpha for the scale was 0.79 (95% CI 0.76-0.81).

Gaming frequency. Time spent in gaming activities was measured asking participants how often they use Internet in a day to play (1) skill games and (2) role-playing games or virtual games, rating on a 5-point Likert scale (1 "never" to 5 "very often"). A mean score of the two items was computed to represent the frequency of participants' online gaming engagement (Siciliano et al., 2015).

Social norms. Perceived group norms and expectations about gaming engagement were measured with 4 items from a study on problematic Facebook use (Marino et al., 2016; Marino et al.,

2020) and adapted to videogames use. Items were rated on a 5-point Likert scale (1 “not at all” to 5 “very much”). The Cronbach’s alpha for the scale was 0.82 (95% CI 0.79–0.84).

Perceived gaming frequency by friends. Friends’ perceived engagement in gaming activities was measured using a single item (1 “never” to 5 “very often”), with participants rating how often they think their friends play videogames in a day.

Coping via Internet. Participants’ tendency to use Internet as a strategy to cope with negative affect was assessed using the subscale of the Internet Motive Questionnaire for Adolescents (IMQ-A) by Bischof-Kastner and colleagues (2014). For the purpose of the current study only coping scores were used for the analysis (4 items; Cronbach’s alpha = 0.88 (95% CI 0.86–0.90)). Items were rated on a 5-point Likert scale (1 “almost never” to 5 “almost always”) so that higher scores indicate higher levels on coping via Internet. Furthermore, to perform multi-group analysis, participants’ coping scores (M = 2.1; DS = .99) were recoded as follows: 0 (low coping via Internet group) = participants with scores below the mean (N = 298) and 1 (high coping via Internet group) = participants with scores above the mean (N = 172).

Statistical analysis

First correlations among all the study variables were computed. Then, a path analysis using Mplus 8.3 (Muthén & Muthén, 2017) was conducted to test the hypothesized model. Bias-corrected bootstrap confidence intervals with 1,000 bootstrapped iterations were used for calculating indirect effects. In the tested model, IGD was the dependent variable, social norms and perceived friends’ use were the independent variables, and participants’ gaming frequency was the mediator variable. Age and gender were included as control variables on the outcome. To evaluate the goodness of fit of the model, the R^2 of each endogenous variable was considered.

The model was first tested on the whole sample of adolescents; then a multi-group analysis was conducted to test the model independently for two groups of Internet users (participants with high coping via Internet *vs*. participant with low coping via Internet). After this, unstandardized

coefficients were compared between groups (with the "Model test" command) in Mplus, which allows for specific hypothesis testing across groups with a Wald chi-square tests of parameter equalities (Muthén & Muthén, 1998-2015).

Ethics

The study procedures were carried out in accordance with the Declaration of Helsinki. The Institutional Review Board of the University of [blinded] approved the study. This study did not involve human and/or animal experimentation. After school principals gave permission, parents - or participants older than 18 years – were informed about the study and provided consent.

RESULTS

Descriptive statistics and correlations between the study variables are reported in Table 1. As expected, IGD was found to be positively associated with all variables, except age. Path analysis results are reported in Figure 1. Regarding the direct effects, social norms were positively associated with IGD (β=0.33, p<0.001) and gaming frequency (β=0.13, p=0.01), which was, in turn, significantly associated with IGD (β=0.27, p<0.001). Then, as expected, friends' use was positively associated with game frequency (β=0.39, p<0.001), but not directly associated with IGD. Along with the direct paths, both social norms (β=0.035, CI 95% 0.007-0.066) and friends' use (β=0.107, CI 95% 0.066-0.157) were found to be indirectly associated with IGD via participants' gaming frequency. Age and gender were not found to be associated with IGD. The model explained 22% of the variance for IGD, and 20% for the gaming frequency. Results from multi-group analysis showed significant differences between the high vs. low coping via Internet groups. Specifically, the Wald test of parameter constraints was statistically significant (Wald $\chi2(1) = 3.98$, p=0.046) for the direct link between social norms and gaming frequency, indicating that this association was significant only for high coping via Internet group, compared to the low coping group (b=0.37, SE =0.100, p<0.001, vs. b=0.90, SE =0.097, p=0.35). Multi-group results are reported in Figure 1.

[PLEASE INSERT TABLE 1 HERE]

[PLEASE INSERT FIGURE 1 HERE]

DISCUSSION AND CONCLUSIONS

Our results confirmed that social norms and friends' gaming frequency were significantly associated to participants' own gaming frequency and IGD and evidenced greater vulnerability to social processes in adolescents who rely more on gaming activities to deal with negative affect. Consistent with previous studies (Haagsma et al., 2013; Simons et al., 2014), our findings indicated that perceiving higher friends' expectations to play and higher friends' engagement in gaming may increase adolescents' frequency of playing. In line with the Theory of Planned Behaviour (Ajzen, 1991), these results stressed that social processes are key motivational factors for gaming, whereby a high value attributed to this activity by a like-minded group of friends can reinforce participation intention and actual behaviour. Furthermore, interacting online with peers having similar interests contributes to strengthen the meaningfulness of this activity (Paulus et al., 2018). Noteworthy, beyond real life friends, virtual friends (e.g., members of clans or guilds) may also exert pressure to maintain high involvement in gaming (Beranuy et al., 2013). Furthermore, in this study, social norms were positively associated with IGD both directly and indirectly via higher adolescents' gaming frequency. Thus, friends' influence may not only increase participation in gaming, but it may also enhance the risk of experiencing problems. Indeed, it has been shown that higher gaming frequency was positively associated with more IGD symptoms, in line with previous literature (Liu et al., 2021).

Additionally, no differences were found for age and gender on IGD. As pinpointed by Lopez-Fernandez and colleagues (2019), despite gaming has been traditionally considered as a male activity, the number of female gamers has recently grown. This could be particularly relevant for prevention programs targeting adolescent IGD in schools, which should stimulate constructive debate by involving all class members.

A further finding was that adolescents with higher levels of coping via Internet reported higher levels of IGD. This is not surprising, considering that abundant research has demonstrated that individuals who massively turn to gaming driven by escapism-coping motives experienced more problems (e.g., Kardefelt-Winther et al., 2014; Melodia et al., 2020). However, despite this association, multi-group analysis based on low vs. high coping via Internet revealed that social processes were relevant for both groups. Crucially, the only exception was found for the association between social norms and participants' gaming frequency, which was significant only for adolescents with high coping. Therefore, if on one hand, social influence processes could be normative in adolescence (Andrews et al., 2020), on the other, they may become particularly problematic for students with higher tendencies to cope via Internet-based activities. Indeed, research has shown that youngsters who play videogames excessively may also have lower social competence and, consequently, they may be more susceptible to social influence processes than other peers (Peeters et al., 2018).

These findings have important implications for the implementation of prevention strategies, which may specifically target and modify the characteristics of this vulnerable subgroup. Interventions focusing on gaming motives and social skills might be of value in tackling adolescent IGD (Kirkaburun et al., 2020; Lopez-Fernandez et al., 2021). Adolescents should be instructed about how to use adaptive strategies to deal with unpleasant states, for instance, via school-based programs including mindfulness techniques, and how to reinforce their interpersonal relationships skills (van Loon et al., 2020).

A few limitations should be acknowledged. First, the cross-sectional design did not allow to make definitive inferences about the directionality of the associations (Payne & Payne, 2004). Second, self-report questionnaires were employed with all their inherent and well-recognised shortfalls (Stone et al., 1999). Additionally, results should be considered with caution, since data collection was limited to a relatively modest, national sample of adolescents, unevenly distributed between genders (Males = 77.9%). Future research should involve larger and cross-cultural samples,

as well as employ longitudinal designs. Furthermore, coping motives were assessed by generally referring to participants' Internet use, and not specifically to online gaming. Future research should include more specific measures, such as the Videogaming Motives Questionnaire (Lopez-Fernandez et al., 2020). Another limitation was that this study examined the perception of friends' behaviours collectively, without distinguishing between real life friends and virtual ones; thus, more research is warranted.

Despite these limitations, our findings confirmed the relative importance of peer influences on adolescents' gaming behaviours and IGD and showed that adolescents who rely more on online gaming to cope with negative affect may be more vulnerable to social influence processes than other peers**.**

Authors Contribution: Federica Angelini: Data curation, Formal Analysis, Writing – original draft; **Erika Pivetta:** Investigation, Writing – original draft; **Claudia Marino:** Conceptualization, Data curation, Project administration, Supervision Writing – review & editing; **Natale Canale:** Supervision, Writing – review & editing, Validation; **Marcantonio M. Spada:** Writing – review & editing, Validation; **Alessio Vieno:** Conceptualization, Supervision,Writing – review & editing, Validation.

REFERENCES

Albert D., Steinberg L. (2011). Peer Influences on Adolescent Risk Behavior. In: Bardo M., Fishbein D., Milich R. (Eds.) *Inhibitory Control and Drug Abuse Prevention*. New York, NY: Springer (pp. 221-226). https://doi.org/10.1007/978-1-4419-1268-8_11

American Psychiatric Association [APA]. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Andrews, J. L., Foulkes, L., & Blakemore, S. J. (2020). Peer influence in adolescence: Public-health implications for COVID-19. *Trends in Cognitive Sciences*, *24*(8), 585-587. https://doi.org/10.1016/j.tics.2020.05.001

Bender, P. K., Kim, E. L., & Gentile, D. A. (2020). Gaming Disorder in Children and Adolescents: Risk Factors and Preventive Approaches. *Current Addiction Reports*, 7, 553-560. https://doi.org/10.1007/s40429-020-00337-5

Beranuy, M., Carbonell, X., & Griffiths, M. D. (2013). A qualitative analysis of online gaming addicts in treatment. *International Journal of Mental Health and Addiction*, *11*(2), 149-161. https://doi.org/10.1007/s11469-012-9405-2

Bischof-Kastner, C., Kuntsche, E., & Wolstein, J. (2014). Identifying problematic Internet users: development and validation of the Internet Motive Questionnaire for Adolescents (IMQ-A). *Journal of Medical Internet Research*, *16* (10), e230. https://doi: 10.2196/jmir.3398

Haagsma, M. C., King, D. L., Pieterse, M. E., & Peters, O. (2013). Assessing problematic video gaming using the theory of planned behavior: A longitudinal study of Dutch young people. *International Journal of Mental Health and Addiction*, *11*(2), 172-185. https://doi.org/10.1007/s11469-012-9407-0

Kardefelt-Winther, D. (2014). A conceptual and methodological critique of Internet addiction research: Towards a model of compensatory Internet use. *Computers in Human Behavior*, *31*, 351-354. https://doi.org/10.1016/j.chb.2013.10.059

Kelman, H. C. (1974). Further thoughts on the processes of compliance, identification, and internalization. In J. T. Tedeschi (Ed.), *Perspectives on social power* (pp. 126–171). Chicago, IL: Aldine Press.

Kircaburun, K., Demetrovics, Z., Griffiths, M. D., Király, O., Kun, B., & Tosuntaş, Ş. B. (2020). Trait emotional intelligence and Internet gaming disorder among gamers: The mediating role of online gaming motives and moderating role of age groups. *International Journal of Mental Health and Addiction*, *18*(5), 1446-1457. https://doi.org/10.1007/s11469-019-00179-x

Liu, Y., Gong, R., Yu, Y., Xu, C., Yu, X., Chang, R., Wang, H., Wang, S., Wang, Q., & Cai, Y. (2021). Longitudinal predictors for incidence of Internet gaming disorder among adolescents: The roles of time spent on gaming and depressive symptoms. *Journal of Adolescence*, *92*, 1-9. https://doi.org/10.1016/j.adolescence.2021.06.008

Lopez-Fernandez, O., Williams, A. J., Griffiths, M. D., & Kuss, D. J. (2019). Female gaming, gaming addiction, and the role of women within gaming culture: A narrative literature review. *Frontiers in Psychiatry*, *10*, 454. https://doi.org/10.3389/fpsyt.2019.00454

López-Fernández, F. J., Mezquita, L., Griffiths, M. D., Ortet, G., & Ibáñez, M. I. (2020). The development and validation of the Videogaming Motives Questionnaire (VMQ). *PloS one*, *15*(10), e0240726. https://doi.org/10.1371/journal.pone.0240726

López-Fernández, F. J., Mezquita, L., Ortet, G., & Ibáñez, M. I. (2021). Mediational role of gaming motives in the associations of the Five Factor Model of personality with weekly and disordered gaming in adolescents. *Personality and Individual Differences*, *182*, 111063. https://doi.org/10.1016/j.paid.2021.111063

Männikkö, N., Billieux, J., Nordström, T., Koivisto, K., & Kääriäinen, M. (2017). Problematic gaming behaviour in Finnish adolescents and young adults: relation to game genres, gaming motives

and self-awareness of problematic use. *International Journal of Mental Health and Addiction*, *15*(2), 324-338. https://doi.org/10.1007/s11469-016-9726-7

Marino, C., Gini, G., Angelini, F., Vieno, A., & Spada, M. M. (2020). Social norms and e-motions in problematic social media use among adolescents. *Addictive Behaviors Reports*, *11*, 100250. https://doi.org/10.1016/j.abrep.2020.100250

Marino, C., Vieno, A., Pastore, M., Albery, I. P., Frings, D., & Spada, M. M. (2016). Modeling the contribution of personality, social identity and social norms to problematic Facebook use in adolescents. *Addictive Behaviors*, *63*, 51–56. https://doi.org/10.1016/j.addbeh.2016.07.001

Melodia, F., Canale, N., & Griffiths, M. D. (2020). The role of avoidance coping and escape motives in problematic online gaming: A systematic literature review. *International Journal of Mental Health and Addiction*, 1-27. https://doi.org/10.1007/s11469-020-00422-w

Monacis, L., De Palo, V., Griffiths, M. D., & Sinatra, M. (2016). Validation of the Internet Gaming Disorder Scale – Short-Form (IGDS9-SF) in an Italian-speaking sample. *Journal of Behavioral Addictions*, *5*(4), 683-690. https://doi.org/10.1556/2006.5.201

Muthén, L. K., & Muthén, B. O. (1998–2015). *Mplus User's Guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.

Muthén, L. K., & Muthén, B. (2017). *Mplus user's guide: Statistical analysis with latent variables, user's guide*. Los Angeles, CA: Muthén & Muthén.

Payne, G., & Payne, J. (2004). Association and causation. In *Sage key concepts: Key concepts in social research*. London, UK: Sage.

Paulus, F. W., Ohmann, S., Von Gontard, A., & Popow, C. (2018). Internet gaming disorder in children and adolescents: a systematic review. *Developmental Medicine & Child Neurology*, *60*(7), 645-659. https://doi.org/10.1111/dmcn.13754

Peeters, M., Koning, I., & van den Eijnden, R. (2018). Predicting Internet gaming disorder symptoms in young adolescents: A one-year follow-up study. *Computers in Human Behavior*, *80*, 255-261. https://doi.org/10.1016/j.chb.2017.11.008

Pontes, H. M., & Griffiths, M. D. (2015). Measuring DSM-5 Internet Gaming Disorder: Development and validation of a short psychometric scale. *Computers in Human Behavior*, *45*, 137-143. https://doi.org/10.1016/j.chb.2014.12.006

Shi, J., Renwick, R., Turner, N. E., & Kirsh, B. (2019). Understanding the lives of problem gamers: The meaning, purpose, and influences of video gaming. *Computers in Human Behavior*, *97*, 291-303. https://doi.org/10.1016/j.chb.2019.03.023

Siciliano, V., Bastiani, L., Mezzasalma, L., Thanki, D., Curzio, O., & Molinaro, S. (2015). Validation of a new Short Problematic Internet Use Test in a nationally representative sample of adolescents. *Computers in Human Behavior*, *45*, 177-184. https://doi.org/ 10.1016/j.chb.2014.11.0

Simons, M., de Vet, E., Chinapaw, M. J., de Boer, M., Seidell, J. C., & Brug, J. (2014). Personal, social, and game-related correlates of active and non-active gaming among dutch gaming adolescents: survey-based multivariable, multilevel logistic regression analyses. *JMIR Serious Games*, *2*(1), e3092. https://doi: 10.2196/games.3092

Stone, A. A., Bachrach, C. A., Jobe, J. B., Kurtzman, H. S., & Cain, V. S. (Eds.). (1999). *The science of self-report: Implications for research and practice*. New York, NY: Psychology Press.

Sugaya, N., Shirasaka, T., Takahashi, K., & Kanda, H. (2019). Bio-psychosocial factors of children and adolescents with Internet gaming disorder: a systematic review. *BioPsychoSocial Medicine*, *13*(3), 1-16. https://doi.org/10.1186/s13030-019-0144-5

van Loon, A. W., Creemers, H. E., Beumer, W. Y., Okorn, A., Vogelaar, S., Saab, N., Miers, A. C., Westenberg, P. M., & Asscher, J. J. (2020). Can schools reduce adolescent psychological stress? A multilevel meta-analysis of the effectiveness of school-based intervention programs. *Journal of Youth and Adolescence*, *49*(6), 1127-1145. https://doi.org/10.1007/s10964-020-01201-5

World Health Organization [WHO]. (2018). International classification of diseases for mortality and morbidity statistics (11th Revision). https://icd.who.int/browse11/l-m/en.

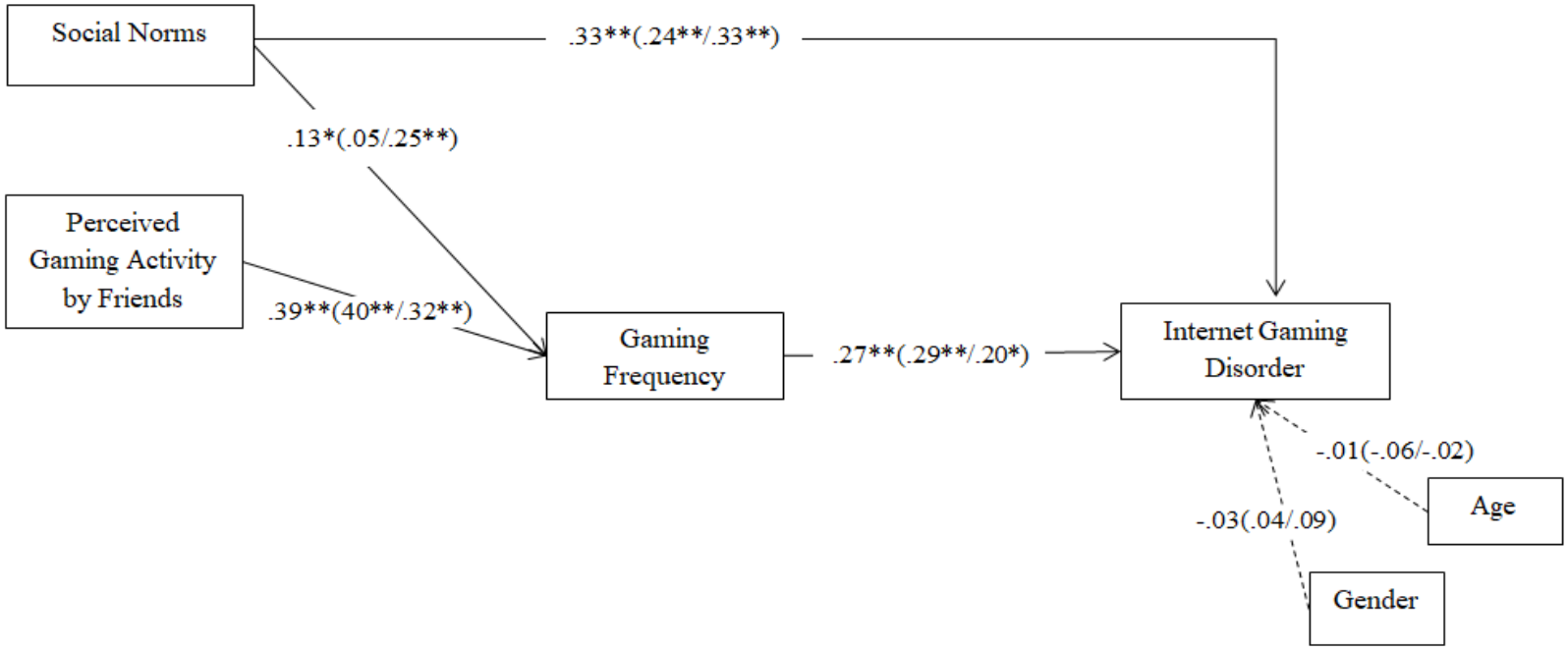
Wu, J. Y. W., Ko, H. C., Wong, T. Y., Wu, L. A., & Oei, T. P. (2016). Positive outcome expectancy mediates the relationship between peer influence and Internet gaming addiction among adolescents in Taiwan. *Cyberpsychology, Behavior, and Social Networking*, *19*(1), 49-55. https://doi: 10.1089/cyber.2015.0345

Table 1. Descriptive statistics and correlations between the study variables (whole sample: below the diagonal; low/high coping groups: above the diagonal).

		M(SD)									
		Whole sample	Low coping group	High coping group	1	2	3	4	5	6	7
1.	IGD	1.77(0.61)	1.62 (0.53)	2.02 (0.67)	_	.30***/.44*	.34***/.35***	.24***/.07	-.13*/-.09	.15*/.28***	_
2.	Social Norms	1.67(.073)	1.59 (0.68)	1.82 (0.79)	.39***	_	.15*/.34***	.24***/.24***	-.13*/-.12	.20**/.38***	_
3.	Gaming Frequency	2.67(1.20)	2.63 (1.21)	2.74 (1.17)	.34***	.23***	_	.41***/.44***	-.10/-.16*	.18***/.31***	_
4.	Friends Use	3.46(1.09)	3.42 (1.07)	3.52 (1.14)	.17***	.24***	.42***	_	.04/-.06	.15***/.36***	_
5.	Age	15.49(1.05)	15.39 (1.05)	15.65 (1.02)	-.07	-.11*	-.12*	.01	_	-.03/-.02	_
6.	Gender	__	__	__	.17***	.26***	.22***	.23***	-.02	_	_
7.	Coping	__	__	__	.32***	.15***	.04	.05	12*	-.08	_

Note. N = 470; ***p < .001; **p < .01; *p < .05; IGD= Internet Gaming Disorder; gender: females = 0, males = 1; Coping: 0 = low coping via Internet, 1 = high coping via Internet.

Figure 1. Model of the inter-relationships between the study variables on the whole sample and in coping groups (low vs. high coping via Internet).



Note. N = 470 (low coping via Internet = 298; high coping via Internet = 172); $^{**}p < .001$; $^{*}p < .05$; standardized estimates: whole sample (low/high).