Empathy, Social Self-Efficacy, Problematic Internet Use, and Problematic Online Gaming Between Early and Late Adolescence

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Abstract

This study aims to investigate the relationship between empathy, social self-efficacy, problematic internet use (PIU) and problematic online gaming (POG), and to evaluate how such relationship varies according to the age of the participants. A sample of 1585 Italian students, both genders, aged 12 to 20, divided into 3 groups according to the age filled in these self-report questionnaires: Problematic Internet use; Game Addiction Scale for Adolescents; Interpersonal Reactivity Index; Scale of social self-efficacy; Strengths and Difficulties Questionnaire. The results allow to confirm that in the Italian context the relationships between the examined constructs change across the three age groups considered in the study. PIU and POG, as well as prosocial behaviors and personal distress, tend to significantly decrease in late adolescence (age 18-20); 15-17 adolescents reported more empathic concern compared to the other groups. PIU and POG are affected by empathy and social-self efficacy in different ways depending on age, suggesting that the two conditions have an at least partially different nature. The different components of empathy seem to play a different role in the development of either PIU or POG confirming the need to separate the components of empathy.

Introduction

During the last decade there has been a growing interest in the examination of the consequences of problematic use of technology[1]. The pathological involvement with computers or videogames has been associated to Personality Characteristics[2] and poor academic achievement[3,4,5]. The literature provides heterogeneous terms and definitions for describing the pathological use of technology[6]. In the literature, the boundaries between constructs used in this field (e.g., computer addiction, technological addiction, internet addictive disorder, internet behavior dependence, internet game addiction), are not always clear although there is a tendency to discriminate between constructs related to problematic gaming and others concerning problematic use of internet[7]. Indeed, research shows that the problematic use of internet should be considered as separate construct from gaming disorders as they are correlated with each other but not completely overlapping[8,9]. To avoid terminological confusion, we systematically use the terms Problematic Internet Use (PIU) and Problematic Online Gaming (POG)[8], which have been previously used in the literature. Studying PIU and POG during adolescence is important because especially in this age group both of them can lead to psychological, social and physical problems that may affect the development negatively[11,12,13]. In some studies it is argued that many variables related to PIU can be applied also to POG[7] making it relevant to study these two conditions in a coordinated way. In particular, the main constructs examined in this study (empathy, prosocial behaviors, and social self-efficacy) have been associated to both of these conditions in the previous literature. Therefore, it is an empirical issue to examine to what degree PIU and POG are equally or differently affected by them.

Empathy has been addressed in several studies examining either PIU or POG, although findings have been mixed[6,14]. On the one hand, some studies showed that empathy is (negatively) associated with both PIU[15] and POG[16]. On the other hand, Collins and Freeman[17] report a study showing that empathy is not a contributing factor to POG in adults. A recent study on this topic[14] suggests that the complexity of this relationship might be related to the disagreement among researchers concerning the operational definitions, measurement tools, and components of the construct of empathy. While many researchers adopt a two-factor conceptualization including a cognitive and an affective factor, some scholars provide findings allowing to defend a four-factor model as originally conceived by Davis[18]. In particular, some authors[19,20], claim that the empathic concern and the perspective taking subscales correspond more directly to the conceptual definition of empathy than the other two scales. Furthermore, research on the relationship between empathy and video-game play often focused on the effects of violent media and games[21,22], while other dimensions have been less studied.

In addition, it is reasonable to hypothesize that one of the factors affecting the interconnection between empathy and these two conditions is age. The rationale behind this hypothesis is that age

seem to shows an inverse U-shape relation with POG, with the highest levels in late adolescence[6], while empathic capacities firstly develop during childhood and expand throughout adolescence[23,24]. Indeed, as widely discussed in previous research, perspective taking and empathic concern are expected to increase from early to late adolescence[25,26]. To the best of our knowledge there are not studying addressing the effect of age on the relationship between empathy and PIU. Therefore, the inconsistent data about the relationship between PIU, POG and empathy found in previous studies might be connected to developmental processes taking place during adolescence. Currently, the literature addressing the developmental processes associated to this research problem is scarce. This field of research, we argue, also involves the examination of the variation of PIU and POG according to the age of adolescents, which is targeted in the present study.

Furthermore, empathy is often considered as a predictor of prosocial behaviors[27,28] and in turn the latter has been associated with PIU and POG. Some studies demonstrate a negative correlation between POG and prosocial behaviors[29]. In this way, it seems that empathy might also bear indirect effects on PIU and POG by mediation of prosocial behaviors. Finally, even though the findings are not always consistent, research show that also social self-efficacy can contribute to predict prosocial behaviors[7,30], and that at the same time low levels of social self-efficacy seem to be associated to high levels of both PIU and POG[11,31]. Therefore, we hypothesize that the constructs of social self-efficacy and prosocial behaviors might significantly contribute to explain the investigated phenomenon.

The current literature does not allow to understand if the relationships that have been found between the mentioned constructs vary across age, nor to explain why findings on these associations are inconsistent. Accordingly, the present study contributes to address this research gap by examining the effects of empathy and social self-efficacy on PIU and POG from pre-adolescence to late adolescence, also considering the potential mediating effect of prosocial behaviors. We present findings from an extensive dataset involving Italian adolescents and report on how such relationship varies according to the age of the participants.

Method

Participants and procedure

The present investigation involved 1585 students aged 12 to 20, attending lower or upper secondary school in three different Italian regions (Piemonte, Lazio and Campania). The data collection took place entirely before the start of the Covid-19 pandemic. All the students were divided into 3 groups according to their age. 349 participants (59%=males; 41%=females) belonged to the first group of 12 to 14 years (M =13.63; SD =.66); 900 students (65%=males; 35%=females) belonged to the second

group of 15-17 years (M =15.98; SD =.80); finally 336 participants (74%=males; 26%=females) belonged to the third group of 18-20 years (M =18.28; SD =.53).

All the students were asked to fill questionnaires on PIU, POG, empathy, social-self-efficacy and prosocial behaviors. For underage students, the parents filled in an informed consent form. Students of age filled the form themselves. Thanks to the collaboration of the school principals the surveys were administered at school. The research was approved by the Ethical Committee of the Center of Research and Psychological Intervention of the University of XXXX (n.118063).

Measures

Problematic Internet use[32] was measured using a survey composed of 10 items. Adolescents were asked to rate each item for their agreement using a 6-point scale ranging from 1 (strongly disagree) to 6 (strongly agree). The English version of this survey is mainly used in clinical settings. The Italian version was developed by Baiocco, Couyoumdjian, Del Miglio[10], who also adapted it for adolescents. In this study the internal consistency of this scale is good (α=.82).

Game Addiction Scale for Adolescents was developed and validated by Lemmens, Valkenburg, & Gentile[33]. It is based on a 5-point scale ranging from 1 (never) to 5 (always). It includes 21 items to measure seven underlying criteria: importance, tolerance, mood change, relapse, abstinence, conflict, problems. The authors have also tested a short version reduced to seven items, which showed good validity and reliability.[10] In this study the short version was used, and the internal consistency of this scale is good (α=.87).

The Interpersonal Reactivity Index (IRI) is one of the most widely used surveys used to measure empathy. It was designed by Davis[34] to measure four key components of an empathic response. The 28-item questionnaire consists of four 7-item subscales: Fantasy-empathy (F), perspective taking (PT), Empathic concern (EC), Personal distress (PD). The IRI was validated on the Italian population by Albiero & Matricardi[35], who confirmed the factorial model hypothesized by Davis and found sufficient reliability coefficients for all the scales (range: 0.63–0.75). In the present study Cronbach's alphas for all the subscales is: F: α=.61, PT α=.59, EC α=.70, PD α=.61.

The scale of social self-efficacy[36] is composed of 13 items aimed at measuring the students' beliefs concerning their capability of establishing and maintaining interpersonal relationships, as well as their ability to express their opinions and defend their rights in relationships with their peers. The original formulation of the scale was developed by Bandura (1993) for primary school children. The Italian version of the scale, after translation, was adapted and validated for students attending lower secondary and upper secondary schools and widely used in the Italian context[36]. This is a 4-point

scale ranging from 1 (not at all capable) to 4 (very capable). In this study the internal consistency of this scale is satisfactory (α=.84).

Strengths and Difficulties Questionnaire (SDQ)[37] allows to collect data on the behaviors of preadolescents and adolescents. It is composed of 25 items that refer to positive or negative aspects of behavior. The items are divided into 5 subscales: hyperactivity, behavioral problems, emotional difficulties, prosocial behaviors, relationship with peers. In this study only the scale concerning prosocial behaviors was considered. In this study the alpha value is .67.

Statistical Analysis

The Statistical Package for Social Science (IBM SPSS Statistics 19) was used for the analysis. Differences between the three age groups were assessed using a series of ANOVA. Bivariate correlations in every age group were performed to assess the relationships between variables. The lavaan package[38] of the open-source software R was used to test a model with the four scales of empathy and social self-efficacy that predict prosocial behaviors, which in turn predicts PIU and POG. Furthermore, the nonparametric bootstrap approach for the standard errors with 5000 resample was used. Finally, a multi-group path analysis was tested with the age of adolescents as groups variable, to verify whether structural paths would differ between early, middle and late adolescents.

Results

Table 1 summarizes the means and standard deviations for the key variables in the study in the 12-14 years, 15-17 years, 18-20 years subsamples separately.

To examine the effects of age on PIU, an Univariate Anova with age as the between variable and PIU as the dependent variable was performed. A significant main effect of age was found [$F_{(2,1582)}$ =7.58, $p < .01$, g2p=.01]. Post-hoc tests on age group, performed with Bonferroni adjustments, revealed that subjects in the 18-20 age group reported PIU to a lesser extent than 12-14 preadolescents (p=.002) and 15-17 adolescents (p=.001).

To examine the effects of age on POG, an Univariate Anova with age as the between variable and POG as the dependent variable was performed. A significant main effect of age was found [$F_{(2,1582)}$ =3.80, $p < .05$, g2p=.005]. Post-hoc tests on age group revealed that POG in the 18-20 age group was significantly lower than in 15-17 group (p=.018).

Similarly, a significant main effect of age group was found in relation to prosocial behaviors [$F_{(2,1582)}$ =7.43, $p < .01$, g2p=.01]. Post-hoc test revealed that 18-20 group reported lower prosocial

behaviors than 12-14 (p=.035) and 15-17 (p<.001) groups. No significant differences were found, instead, between groups in social self-efficacy [F(2,1582) =1.96, p > .05].

To examine the effects of age on the four scales of empathy, a Multivariate Anova with age as the between variable and the subscales of empathy as the dependent variables was performed. A significant main effect of age group was found [Wilks' Lambda =.98, F(8,3146) =5.49, p < .01, g2p =.014]. Follow-up univariate tests revealed a significant main effect of age group on PT [F(2,1576) =4.40, p =.012, g2p=.006], E [F(2,1576) =11.23, p < .01, g2p=.014] and PD [F(2,1576) =7.81, p <.01, g2p=.01]. However, no significant effect of age group was found on Fantasy [F(2,1576) =.91, p =.40, g2p=.001].

Post-hoc tests on age group, performed with Bonferroni adjustments, revealed that 15-17 age group reported higher PT than 12-14 group (p=.010), but not than 18-20 (p=.85). Furthermore, 15-17 adolescents reported more EC than 18-20 (p<.01) but not than 12-14 groups (p=.15). Finally, 18-20 group reported lower PD both than 12-14 (p=.001) and 15-17 (p=.001) groups. No other significant differences emerged.

Correlational analyses (Pearson's rho) were conducted to examine the extent of associations between the key variables along the three age groups (Table 2).

Specifically, PIU was found positively related to POG as well as to fantasy and to PD in all the three groups (p<.01). Only in the 15-17 group PIU was positively associated with EC (p<.01) and PT (p<.05). Finally, PIU was negatively related to social self-efficacy among 15-17 and 18-20 groups (p<.01).

Furthermore, POG was found positively related to PD in all groups (p<.01). Only in the 18-20 group POG was negatively associated both with EC and PT (p<.01). Finally, POG was negatively related to social-self efficacy (p<.01) and prosocial behaviors (p<.01) both in 15-17 and 18-20 groups.

A satured model with the four scales of empathy and social self-efficacy that predict prosocial behaviors, that in turn predicts PIU and POG, was tested (Figure 1). As shown in Table 3, PT, EC and social self-efficacy were related positively to prosocial behaviors. In turn, PIU was positively related to Fantasy, EC and PD, and negatively related to social self-efficacy. Furthermore, POG was positively related to PD, and negatively related to social self-efficacy and prosocial behaviors.

Finally, a multigroup path analysis was conducted on the hypothesized model to examine whether structural paths would differ between age groups. A constrained saturated model with all the paths of the hypothesized model set equal across the three groups was compared to an unconstrained model with all paths allowed to vary across the three groups. The fit indices of the unconstrained model significantly differ from the constrained model, $\Delta\chi2(34) = 48.13$, p=.05. Thus, the associations were not similar among groups.

Specifically, in the 12-14 years group (Figure 2), differently from the other groups, EC was negatively related to POG b =-.17, p =.03, CI(-0.32, -0.01), β =-.15, while prosocial behaviors was not related to POG (p>.05) (cfr. Table 4). Furthermore, in the 15-17 years group (Figure 3) social self-efficacy was negatively related to POG b =-.16, p < .001, CI(-0.24, -0.08), β =-.15, while Fantasy was not related to PIU (p>.05) (cfr. Table 5). Finally, in the 18-20 years group social self-efficacy was not related to gaming (p>.05) (cfr. Table 6).

Discussion

The main goal of the present investigation was to study empathy, social-self efficacy and prosocial behaviors in relation to PIU and POG, as well as their variation depending on age from preadolescence to late adolescence. We also tested the potential mediating effect of prosocial behaviors. The results allow to confirm that in the Italian context the relationships between the examined constructs change across the three age groups considered in the study. In sum, the analysis shows that:

1) in the Italian context, middle adolescence (15-17 group) is a crucial age when some significant transformations related to the examined constructs take place
2) PIU, POG, prosocial behaviors and PD, tend to significantly decrease in late adolescence, possibly due to cultural influences
3) PIU and POG are affected by empathy and social-self efficacy in different ways depending on age, suggesting that the two conditions have a partially different nature
4) the different components of empathy seem to play a different role in the development of these two conditions confirming the validity of a multi-component model of empathy

The importance of middle adolescence in our study is stressed by several findings discussed as follows. First, two of the empathy scales of the IRI questionnaire (PT and EC) show the most significant changes during middle adolescence, with no further increase in late adolescence for PT. This finding contradicts previous research suggesting that empathy tend to increase with age[39]. Second, the mediation of prosocial behaviors between PT and POG, as well as the effect of social-self efficacy on PIU emerged in the 15-17 group and persisted in the 18-20 age group. This partially confirm findings from previous studies[40] which showed a negative relationship between these two constructs and PIU and POG. However, our study adds to the previous literature since it shows that these interconnections significantly change in middle adolescence. Third, the effects of EC on PIU and of social self-efficacy on POG were detected only in the 15-17 age group. Accordingly, we claim that our division of the sample in three age groups allows to show that rather than a progressive

development with age from early adolescence to late adolescents, in middle adolesce we detect a substantial transformation concerning the development of empathy and its effects on either PIU or POG, or both. To the best of our knowledge these changes have not been detected in previous studies from other countries[24].

Additionally, in our study, PIU, POG, prosocial behaviors and PD, tend to significantly decrease in late adolescence (age 18-20). This finding partially contradicts research showing that POG is most probable in late adolescence[6]. There are multiple possible ways to interpret this trend. First, as shown in previous studies the link between POG and several psychological constructs might be influenced by culture[41]. Since playing videogames is often considered as a socially accepted behavior for younger children, parents and other significant adults might be stricter with late adolescents concerning time spent online. This hypothesis is in line with research showing that adolescents of single-parents families might exhibit problematic gaming behaviors due to lack of adult supervision[42,43]. Second, in late adolescence students might develop self-regulation skills that might play a protective role. Indeed, previous studies show a negative association between emotional regulation and POG in adults[44].

Furthermore, while the effect of PD concerns both PIU and POG across all age groups, the effects of the other constructs examined in this study tend to affect either PIU or POG at different ages, rather than affecting both conditions at the same age. This suggests that, even though PIU and POG are highly correlated with each other in all the age groups considered, our data support the claim that these disorders have an at least partially different nature[9] and their progression might thus follow different developmental paths. Accordingly, the analysis suggests that empathy and social self-efficacy play a different direct or indirect role in the development of these two types of disorders at different developmental stages.

Finally, our results show that the different components of empathy seem to play a different role in the development of these two conditions. This is in line with research suggesting that separating the components of empathy is important to understand the complex relationships between the empathy and POG[14].

We claim that our findings contribute to shed new light on the age effect on POG, PIU and associated psychological variables, as well as on the interconnections between these variables, which are currently understudied. These findings underscore the importance of separating the components of empathy but also the necessity to look at both PIU and POG from a developmental perspective in order to understand the complex relationships between the constructs examined and their diachronic transformation. We suggest that future research should examine with more details, possibly also through longitudinal studies, the developmental processes taking place during adolescence that might

play a potentially protective function against PIU and POG. We argue that future study should also illuminate the cultural influences that affect these processes, considering that - as discussed above - some findings on this topic from different cultural contexts have been inconsistent with each other.

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Tables

Table 1. *Descriptive analyses for the key variables*

	12-14 years		15-17 years		18-20 years	
	M	SD	M	SD	M	SD
1. Internet use	29.93	9.20	29.56	9.28	27.48	9.27
2. Game addiction	13.77	5.65	13.95	5.97	12.91	5.9
3. Prosocial behaviors	7.63	1.81	7.73	1.84	7.25	2.29
4. Friendship	40.35	5.77	39.94	5.4	39.47	6.71
5. Pespective Taking	22.31	4.43	23.11	4.07	22.81	4.62
6. Fantasy	22.01	5.02	22.13	4.57	21.74	4.60
7. Empathic concern	24.87	4.94	25.45	4.50	24.06	4.73
8. Personal distress	19.79	4.55	19.60	4.33	18.61	4.14

Table 2. *Correlational analyses for the key variables in three age groups* [*p < .05; **p < .01]

12-14 years	Internet use	Game addiction	Prosocial behaviors	Friendship	Perspective Taking	Fantasy	Empathic concern
Game addiction	.51**						
Prosocial behaviors	-.03	-.07					
Friendship	-.05	-.05	.24**				
Perspective Taking	-.03	-.07	.31**	.17**			
Fantasy	.19**	-.02	.25**	-.00	.33**		
Empathic concern	.09	-.12*	.50**	.17**	.44**	.43**	
Personal distress	.30**	.12**	.07	-.26**	.03	.32**	.20**
15-17 years	Internet use	Game addiction	Prosocial behaviors	Friendship	Perspective Taking	Fantasy	Empathic concern
Game addiction	.54**						
Prosocial behaviors	.05	-.10**					
Friendship	-.18**	-.21**	.25**				
Perspective Taking	.07*	.00	.29**	.10**			
Fantasy	.21**	.02	.18**	-.04	.30**		
Empathic concern	.22**	.00	.38**	.12*	.40**	.41**	
Personal distress	.39**	.20**	.02	-.29**	.03	.26**	.16**
18-20 years	Internet use	Game addiction	Prosocial behaviors	Friendship	Perspective Taking	Fantasy	Empathic concern
Game addiction	.51**						
Prosocial behaviors	-.06	-.24**					
Friendship	-.20**	-.16**	.35**				
Perspective Taking	-.06	-.14**	.38**	.30**			
Fantasy	.20**	.01	.19**	.10	.26**		
Empathic concern	.00	-.16**	.45**	.29**	.55**	.39**	
Personal distress	.36**	.24**	-.10	-.27**	-.02	.30**	.02

Table 3. *Direct effects*

	b	p	CI low	CI up	β
Perspective taking → Prosocial behaviors	0.06	0.00	0.04	0.08	0.13
Fantasy scale → Prosocial behaviors	0.01	0.36	-0.01	0.03	0.02
Empathic concern → Prosocial behaviors	0.13	0.00	0.11	0.15	0.32
Personal distress → Prosocial behaviors	0.00	0.66	-0.02	0.03	0.01
Social self-efficacy → Prosocial behaviors	0.07	0.00	0.05	0.09	0.20
Prosocial behaviors → Internet Use	-0.11	0.43	-0.37	0.17	-0.02
Perspective taking → Internet Use	-0.09	0.08	-0.21	0.01	-0.07
Fantasy Scale → Internet Use	0.18	0.00	0.07	0.28	0.09
Empathy concern → Internet Use	0.21	0.00	0.09	0.33	0.11
Personal distress → Internet Use	0.66	0.00	0.56	0.77	0.31
Social self-efficacy → Internet Use	-0.11	0.02	-0.20	-0.02	-0.07
Prosocial behaviors → Gaming	-0.29	0.00	-0.47	-0.10	-0.09
Perspective taking → Gaming	0.02	0.64	-0.05	0.09	0.01
Fantasy Scale → Gaming	-0.02	0.53	-0.09	0.05	-0.02
Empathy concern → Gaming	-0.03	0.42	-0.10	0.05	-0.02
Personal distress → Gaming	0.25	0.00	0.18	0.33	0.19
Social self-efficacy → Gaming	-0.08	0.01	-0.15	-0.20	-0.08

Table 4. *Direct effects. 12-14 years*

	b	p	CI low	CI up	β
Perspective taking → Prosocial behaviors	0.04	0.07	-0.00	0.08	0.09
Fantasy scale → Prosocial behaviors	0.01	0.59	-0.03	0.05	0.03
Empathic concern → Prosocial behaviors	0.15	0.00	0.11	0.19	0.42
Personal distress → Prosocial behaviors	0.01	0.70	-0.03	0.05	0.02
Social self-efficacy → Prosocial behaviors	0.05	0.00	0.02	0.08	0.15
Prosocial behaviors → Internet Use	-0.50	0.09	-1.09	0.09	-0.09
Perspective taking → Internet Use	-0.18	0.13	-0.42	0.05	-0.08
Fantasy Scale → Internet Use	0.24	0.02	0.03	0.46	0.13
Empathic concern → Internet Use	0.11	0.36	-0.13	0.35	0.06
Personal distress → Internet Use	0.54	0.00	0.32	0.77	0.27
Social self-efficacy → Internet Use	0.09	0.32	-0.08	0.26	0.05
Prosocial behaviors → Gaming	-0.05	0.77	-0.43	0.32	-0.02
Perspective taking → Gaming	-0.00	0.96	-0.15	0.15	-0.00
Fantasy Scale → Gaming	-0.01	0.91	-0.14	0.13	-0.01
Empathic concern → Gaming	-0.17	0.03	-0.32	-0.01	-0.15
Personal distress → Gaming	0.20	0.00	0.06	0.35	0.16
Social self-efficacy → Gaming	0.02	0.68	-0.09	0.13	0.02

Table 5. Direct effects. 15-17 years

	b	p	CI low	CI up	β
Perspective taking → Prosocial behaviors	0.07	0.00	0.04	0.09	0.15
Fantasy scale → Prosocial behaviors	0.01	0.54	-0.02	0.03	0.02
Empathic concern → Prosocial behaviors	0.11	0.00	0.08	0.14	0.27
Personal distress → Prosocial behaviors	0.01	0.37	-0.01	0.04	0.03
Social self-efficacy → Prosocial behaviors	0.07	0.00	0.05	0.09	0.21
Prosocial behaviors → Internet Use	-0.01	0.93	-0.35	0.32	-0.00
Perspective taking → Internet Use	-0.02	0.76	-0.17	0.13	-0.01
Fantasy Scale → Internet Use	0.13	0.06	-0.00	0.27	0.06
Empathic concern → Internet Use	0.32	0.00	0.17	0.47	0.15
Personal distress → Internet Use	0.69	0.00	0.55	0.82	0.32
Social self-efficacy → Internet Use	-0.17	0.00	-0.28	-0.06	-0.10
Prosocial behaviors → Gaming	-0.26	0.02	-0.49	-0.03	-0.08
Perspective taking → Gaming	0.06	0.27	-0.05	0.16	0.04
Fantasy Scale → Gaming	-0.05	0.32	-0.14	0.05	-0.04
Empathic concern → Gaming	0.03	0.59	-0.07	0.13	0.02
Personal distress → Gaming	0.23	0.00	0.14	0.33	0.17
Social self-efficacy → Gaming	-0.16	0.00	-0.24	-0.08	-0.15

Table 6. Direct effects. 18-20 years

	b	p	CI low	CI up	β
Perspective taking → Prosocial behaviors	0.07	0.02	0.01	0.12	0.14
Fantasy scale → Prosocial behaviors	0.02	0.55	-0.04	0.07	0.03
Empathic concern → Prosocial behaviors	0.15	0.00	0.09	0.20	0.31
Personal distress → Prosocial behaviors	-0.03	0.24	-0.09	0.02	-0.06
Social self-efficacy → Prosocial behaviors	0.07	0.00	0.03	0.10	0.19
Prosocial behaviors → Internet Use	-0.01	0.97	-0.47	0.46	-0.00
Perspective taking → Internet Use	-0.11	0.36	-0.36	0.13	-0.06
Fantasy Scale → Internet Use	0.27	0.02	0.04	0.49	0.13
Empathic concern → Internet Use	0.02	0.90	-0.24	0.27	0.01
Personal distress → Internet Use	0.65	0.00	0.40	0.89	0.29
Social self-efficacy → Internet Use	-0.16	0.04	-0.31	-0.04	-0.11
Prosocial behaviors → Gaming	-0.46	0.00	-0.77	-0.16	-0.18
Perspective taking → Gaming	-0.04	0.59	-0.20	0.12	-0.02
Fantasy Scale → Gaming	0.02	0.75	-0.13	0.18	0.02
Empathic concern → Gaming	-0.08	0.36	-0.25	-0.09	-0.06
Personal distress → Gaming	0.31	0.00	0.15	0.47	0.21
Social self-efficacy → Gaming	-0.01	0.77	-0.12	0.09	-0.02

Figures

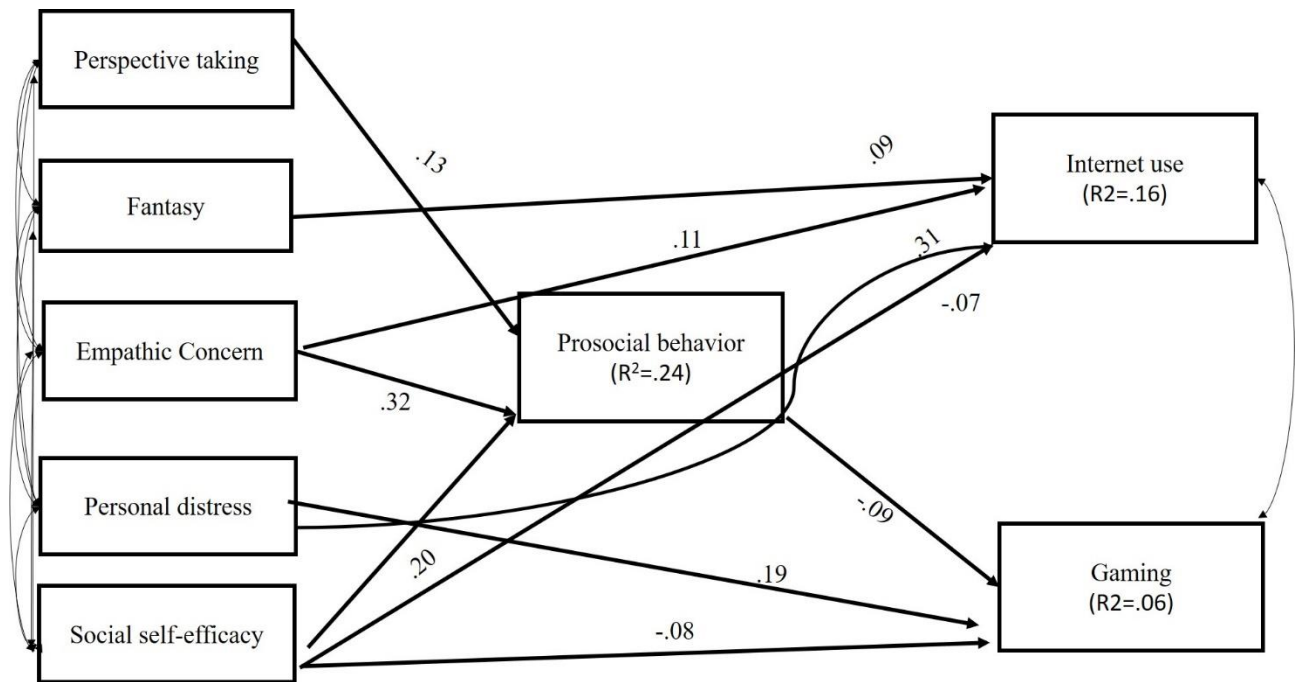Figure 1 Visual representation of the tested model

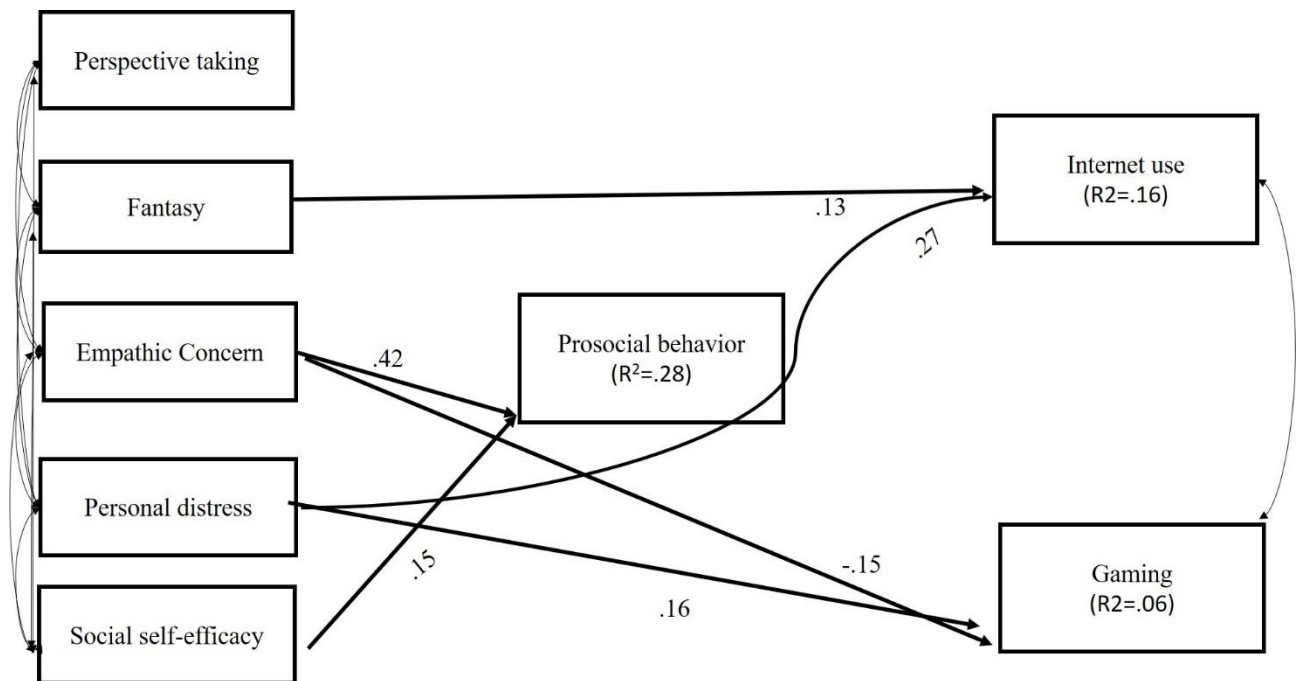Figure 2 Visual representation of the model for the 12–14 age group

Figure 3 Visual representation of the model for the 15–17 age group