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**An Exploratory Analysis of Differential Problematic Internet Use Profiles in Cyberbervictims,  
Cyberbullies and Cyberbully-victims**

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**Conflict of interests**

There are no financial, industrial or other relationships that may constitute a conflict of interest concerning this work.

**Abstract**

The Internet has brought about a paradigm shift in the lives of many people, especially adolescents. While it has opened great possibilities, it has also led to various risks such as

cyberbullying and problematic Internet use. These two constructs have been extensively researched individually and jointly, but the existence of different profiles of problematic use according to the role a person assumes in the context of cyberbullying has not yet been explored. Therefore, the main aim of this study is to analyse the different problematic Internet use profiles of those who have been cybervictims, cyberbullies, and cyberbully–victims. An analytical and cross-sectional study was conducted on 25,341 adolescents between 10 and 18 years of age ( $14.60 \pm 1.68$ ). The Cyberbullying Triangulation Questionnaire (CTQ) and the Spanish version of the Generalized and Problematic Internet Use Scale-2 (GPIUS2) were used. The results indicate that cybervictims (6.4%), cyberbullies (4.3%), and cyberbully–victims (2.7%) have different profiles of problematic Internet use ( $p < .001$ ). Two common profiles emerge from the three roles: one of non-problematic use and the other of severe problematic use. Participants who presented severe problematic use are the ones who obtained higher scores in cybervictimisation and cyberaggression, particularly in the case of cyberbully–victims. Furthermore, this profile is 7.6 (IC99%:6.11–9.44) times more likely to present problematic Internet use than non-victims. These results are relevant when planning cyberbullying-focused interventions and programs because of the association between cyberbully and general problematic Internet use.

**Key Words:** Internet, cyberbullying, cybervictim, adolescents, problematic use, profiles.

## Introduction

The digital society is a source of development and opportunities for people. However, it also entails risks, especially for adolescents, such as cyberbullying and problematic Internet use (PIU). Cyberbullying is a violent and intentional act that is carried out repeatedly over a long period of time through the use of technologies by one or more individuals towards another person who has difficulty defending himself or herself.<sup>1</sup> Cyberbullying behaviours include online name-calling, denigration, impersonation, exclusion, as well as revealing secrets and taking pictures and videos (and spreading them).<sup>2</sup> The effects of cyber-aggression are magnified and multiplied through the use of social networks, which increases the feeling of helplessness and the inability to escape. Furthermore, this behavior usually occurs outside the school context on any day of the week and at any time.<sup>1</sup> The mean prevalence of cybervictimisation is 15% while for cyberaggression, it is 16%, according to some meta-analyses, although the figures vary considerably;<sup>3</sup> in fact, other review studies suggest that cybervictimisation ranges from 1% to 61.1%.<sup>4</sup> It should also be noted that the role of the cyberbully–victim is gaining attention and becoming increasingly important,<sup>5</sup> partly because the psychological consequences associated with this role are usually more severe than for those who are cybervictims or cyberbullies only.<sup>6</sup>

Problematic Internet Use (PIU) is a complex construct that has been approached from different perspectives<sup>7</sup> and that is conceptualized in this research as a dysfunctional use of the Internet by an individual.<sup>8,9</sup> This dysfunctional use is characterized by a preference for online social interaction and the regulation of mood through the Internet, which in turn increases the likelihood of deficient self-regulation (characterized by cognitive preoccupation and compulsive Internet use) that can lead to various negative consequences in the person's life.<sup>10</sup> While it is difficult to establish the overall prevalence of PIU due to the many different definitions and

assessment tools used,<sup>7</sup> in the European context, the prevalence ranges from 14.3% to 54.9%,<sup>11</sup> while studies in the Spanish context place the prevalence of severe PIU between 2.4% and 4.9%.<sup>12,13</sup> The prevalence of at-risk users varies from 16.3%<sup>14</sup> to 18%.<sup>12,13</sup> Profiles of problematic Internet users have also been studied, with at least two approaches. The first of these, based on the GPIU and Caplan's model,<sup>9,10</sup> has established the existence of four profiles: non-problematic users, mood regulation users, problematic users, and severe problematic users.<sup>12</sup> Other authors have established four additional profiles based on other theoretical approaches: first steppers, trainees, sensible users, and heavy users.<sup>15</sup>

The association between cyberbullying and PIU has been explored and established in different transversal<sup>16-18</sup> and longitudinal studies.<sup>19,20</sup> For instance, a cross-cultural study<sup>17</sup> found an association between scores in Problematic Internet use and cybervictimization and cyberaggression, particularly for those adolescents who showed a compulsive use and used internet to regulate their behaviour. In a longitudinal study with Spanish adolescents Gaméz-Guadix et al.<sup>21</sup> found that PIU predicted cyberperpetration six months later, although cyberbullying perpetration at T1 was not related to PIU at T2. Regarding victimization it was found that cybervictimization at T1 predicted PIU six months later, but PIU at T1 was not associated with cybervictimization at T2.<sup>19</sup>

This complex relation could be explained by several theoretical frameworks, one of such would be the Problem behavior theory.<sup>22</sup> According to this theory, those adolescents that participate in one risky or problematic activity are likely to engage in other risky behaviors. Moreover, PIU is intrinsically linked to an increased use of the Internet, and therefore higher exposure to any Internet-related risks such as cyberbullying victimization or perpetration. Furthermore, the relationship between PIU and cyberbullying could be explained according to

compensatory Internet use theory<sup>23</sup> which provides an integrated framework to understand PIU, and postulates that stressors will drive certain adolescents to compulsively use the Internet as an alternative to cope with their negative emotions.<sup>24</sup>

However, to date, the different profiles of problematic users based on their cyberbullying role has not been explored. Therefore, the main objective of this study is to analyse the different problematic Internet use profiles of cybervictims, cyberbullies and cyberbully–victims.

Based on the reviewed literature this study poses the next hypothesis: there will be a significant positive relationship between PIU cybervictimization and cyberaggression. In addition, considering the gap in the literature described above, the following research question is raised: "Are there differential profiles of problematic use of the Internet for victims, aggressors or aggressive victims of cyberbullying?".

## **Materials and methods**

### *Design and participants*

An analytical and cross-sectional study was carried out in a northern Spanish Autonomous Community. The sample comprised 25,341 participants, of whom 49.9% were girls ( $n = 12,569$ ). The sampling was random and representative of the reference population with a margin of error lower than 0.1% (CI 99%). The mean age is  $14.60 \pm 1.68$ .

### *Assessment tools*

For the analysis of the variables under study, the following instruments were used to collect data about the participants' experiences in the previous five months (the start of the course).

- 1) **Victimisation and aggression scales of the Cyberbullying Triangulation Questionnaire (CTQ).**<sup>25</sup> The cybervictimisation scale comprises 11 items (e.g. "Someone has posted

humiliating images of me on the Internet”). The cyberaggression scale includes the same 11 items (e.g. “I have posted humiliating images of a classmate on the Internet”) and four additional items (i.e. 15 items in total) that describe actions that could not be evaluated from the perspective of the cybervictim (e.g. “I have sent links with humiliating images of other people for them to see”). The CTQ uses a Likert scale with three alternative answers (0 = *never*, 1 = *occasionally*, 2 = *often*). The reliability of each subscale is presented in Table 1.

- 2) **Spanish version of the Generalized and Problematic Internet Use Scale-2 (GPIUS2):**<sup>9,10</sup> Comprised of 15 items on a six-point Likert scale ranging from 1 (*completely disagree*) to 6 (*completely agree*). Is composed of five factors: preference for online social interaction (e.g. “I prefer to interact with other people through the Internet rather than communicating face to face”), mood regulation (e.g. “I’ve used the Internet to talk to others when I’ve felt lonely”), negative consequences (e.g. “My use of the Internet has hindered the control of my life”), cognitive preoccupation (e.g. “I would feel lost if I couldn’t connect to the Internet”), and compulsive use (e.g. “When I’m not on the Internet, it’s hard to resist the urge to connect”). The reliability of each subscale is presented in Table 1.

### *Procedure*

A total of 156 state-funded schools (i.e. entirely funded or concerted) were approached through the Regional Ministry of Education and Culture of the Principality of Asturias. The collaboration of the students and the schools was voluntary, anonymous and disinterested. A total of 115 (73%) schools accepted to take part in the study (82 public schools and 33 concerted schools).

The study was performed with the authorisation of the participants, principals and the political-educational institutions. Through official channels, the schools submitted a passive consent form informing the legal guardians of the students about the research. Those who did not wish to allow their child to participate returned the signed form. This occurred in less than 1% of the sample of those schools that took part in the study.

The collection of data was performed the online platform Survey Monkey® using the computer rooms of each center. The average time to complete the questionnaires was 15 minutes.

The project was approved by the Ethics Committee [hidden for review] (Ref.59/17).

#### *Statistical approach*

First, each participant involved in cyberbullying was classified in one of these exclusive roles: cybervictim, cyberbully and cyberbully–victim. For this purpose, the criteria used by González-Cabrera et al.<sup>25</sup> was followed. Specifically, those with total scores equal to or greater than three in the cybervictimisation scale were classified as cybervictims, while total scores equal to or greater than four in the cyberaggression scale were considered cyberbullies. Those who met both conditions were assigned to the cyberbully–victim group. These three categories are mutually exclusive (i.e. no participant was assigned to two categories simultaneously).

With regard to PIU, to establish the problematic category, the cut-off point established by Machimbarrena et al.<sup>12</sup>—a score equal to or higher than 52—was used.

To test the first hypotheses of the study (i.e., relationship between suffering problematic use and cybervictimisation and cyberaggression, Pearson correlations were performed between the direct scores and analysis of odds ratio were calculated between the aforementioned cut-off score of GPIU and being a cybervictim, a cyberbully and a cyberbullying-victim. To answer the



research question three Latent Profile Analyses for each subgroup were carried out separately based on the five PIU dimensions and ANOVA/MANOVA were used to compare their scores.

Regarding the LPA analysis the model that presented the best fit was selected based on several criteria such as BIC, AIC, AWE, entropy, p-value of the Lo-Mendell-Rubin Adjusted LRT and the interpretability of the results following the criteria outlined by Akogul and Erisoglu.<sup>26</sup>

Additionally, the following analyses were performed: descriptive analysis (frequencies, means and standard deviations), and analysis of reliability (omega coefficient). Due to the great number of comparisons, and to limit type I error, only values equal to or less than .001 were considered statistically significant. The analyses were performed using SPSS v.25 and the tidyLPA package.<sup>27</sup>

## Results

The prevalence of participants who are cybervictims was 6.4% ( $n = 1,647$ ), 4.3% ( $n = 1,111$ ) were cyberbullies and 2.7% ( $n = 699$ ) were cyberbully–victims. Table 1 shows the correlations obtained between the cybervictimisation and cyberaggression subscales and the dimensions of the PIU, in addition to their descriptive statistics. Additionally, PIU correlated positively with cybervictimisation ( $r = .288, p < .001$ ) and cyberaggression ( $r = .263, p < .001$ ).

Cybervictims were 4.1 times more likely to present PIU than non-involved adolescents (OR = 4.14 [3.50–4.90]), while cyberbullies were 3.2 times more likely (OR = 3.21 [2.59–3.97]), and cyberbully–victims were 7.6 times more likely to present PIU than non-involved adolescents (OR = 7.59 [6.1–9.44]).

[Insert Table 1]

Subsequently, LPA analyses were performed for each group (cybervictims, cyberbullies and cyberbully–victims) based on the direct scores obtained in the five PIU dimensions. Table 2 presents the values for the different models, with the four-profile model being the most appropriate for cybervictims and the three-profile model for cyberbullies and cyberbully–victims.

[Insert Table 2]

The results of the multivariate analysis of variance (MANOVA) comparing the scores of the profiles in the different variables confirm statistically significant differences in the five dimensions of the PIU between the four profiles among cybervictims (Pillai's trace = 1.39,  $F(15, 4923) = 286.00, p < .001, \eta_p^2 = .466$ ), the three profiles among cyberbullies (Pillai's trace = 1.20,  $F(10, 2210) = 330.00, p < .001, \eta_p^2 = .599$ ) and cyberbully–victims (Pillai's trace = 1.30,  $F(10, 1386) = 74.86, p < .001, \eta_p^2 = .651$ ) and the ten profiles altogether (Pillai's trace = 1.45,  $F(45, 17235) = 156.305, p < .001, \eta_p^2 = .290$ ) in the scores for the five dimensions of the PIU. Scores for each profile and the results of the MANOVA dimensions can be found in Table 3. The profiles are graphically represented through their standardized scores in Figure 1.

[Insert Table 3]

A profile of non-problematic use (NoPIU) can clearly be observed in the three roles of cyberbullying. Similarly, a profile with severe PIU (SevPIU), that presents high scores in all five dimensions—especially relevant are its high scores in negative consequences—can be found in the three roles. In the case of cybervictims, two additional profiles were found: 1) a profile that combines a low preference for online social interaction ( $z$ -score = -0.22) and high scores on

negative Internet consequences ( $z$ -score = 2.77), cognitive preoccupation ( $z$ -score = 1.12) and compulsive use ( $z$ -score = 1.21) (Online Interaction Avoidance Profile; CV-AVOID) and 2) a profile that presents almost opposite characteristics, with a high preference for online social interaction ( $z$ -score = 2.29) and minimal consequences ( $z$ -score = 0.16) (Preference for Online Social Interaction User; CV-POSI). In the group of cyberbullies, a third profile emerges where deficient self-regulation dominates (high cognitive preoccupation and compulsive use), but there are few negative consequences ( $z$ -score = 0.36) (Deficient Self-Regulation; CB-DSR). Finally, in cyberbully–victims, a profile emerges with relatively high scores on all dimensions, especially in mood regulation ( $z$ -score = 1.41), but with low scores on negative consequences ( $z$ -score = 0.37) (Mood Regulation User; CBV-MRU).

[Insert Figure 1]

Finally, the ANOVA analysis between the cybervictimisation and cyberaggression scores and the PIU profiles for each role (Table 4) revealed that those who were assigned to the Severe PIU profile reported the highest scores in cybervictimisation and/or cyberaggression in the three roles.

[Insert Table 4]

## **Discussion**

This manuscript contributes to the understanding of the relationship between cyberbullying and problematic use of the Internet from a previously unaddressed perspective. While both constructs have been analysed individually and jointly in numerous papers,<sup>13–18,28,29</sup> no other

study has analysed the different problematic Internet use profiles in cybervictims, cyberbullies and cyberbully–victims.

Other works that have explored problematic use profiles in broad and general samples<sup>12,15</sup> have identified two clearly defined groups: users without problems and users with severe problems.<sup>12</sup> The focus of this study, however, is on three sub-samples that present an Internet-related risk, namely, being a cybervictim, a cyberbully or a cyberbully–victim. As in other studies, the existence of the aforementioned two profiles (No PIU and Severe PIU) are observed in all three roles.<sup>12,15</sup> However, scores for most of the dimensions of PIU use are slightly over the mean in the No PIU profiles in all three roles (particularly in cybervictims and cyberbully–victims).

In the group of cybervictims, in addition to the two aforementioned profiles, a third profile emerges that we label ‘online social interaction avoidant’ (CV-AVOI) because it is characterized by a below-average online preference but with moderate scores in mood regulation, poor self-regulation and high negative consequences. This profile may fit a person who is being victimized online and, thus, avoiding Internet use and interacting with others online, which could be a coping strategy.<sup>30,31</sup> In contrast, a fourth profile among cybervictims has a strong online preference and moderate mood regulation that presents neither deficient self-regulation nor negative consequences. It could be hypothesized that the impact of the negative behaviour in these victims is probably lower or that they use different strategies to regulate their emotions.<sup>32,33</sup> Among these four profiles, the ones with severe PIU (SevPIU) obtain the highest cyber-victimisation scores.

In the group of cyberbullies, one profile in which high scores on poor self-regulation as characterized by Caplan stands out; this group shows high scores on compulsive Internet use and

excessive concern about it, but this does not seem to lead to negative consequences in the person's life.<sup>9,10</sup> Along these lines, other studies have shown the scarce psychological consequences of the role of pure cyberbully at an emotional and cognitive level.<sup>6,34</sup> Nevertheless, this profile is the one that obtains the lowest score in cyberaggression, together with those that do not present PIU problems. Finally, the severe PIU profile is again the profile that obtains the highest scores in cyberaggression.

In the group of cyberbully–victims, a profile emerges that could be similar to what Machimbarrena<sup>12</sup> termed mood regulation use, which could be similar to the profile of entertainment users identified in other studies.<sup>15</sup> This profile is notable for their use of the Internet to regulate their mood but without any suggestion of poor self-regulation or negative consequences. The severe PIU group within the group of cyberbully–victims have the highest scores in both cybervictimisation and cyberaggression of the entire sample (higher than those of cybervictims and cyberbullies). This situation is common to other psychosocial problems where the group that combines problems of cybervictimisation and cyberaggression usually presents greater psychological effects and more associated problems,<sup>35–39</sup> in this case, PIU. This falls in line with the problem behavior theory<sup>22</sup> according to which adolescents with multiple risks (such as being a cybervictim and a cyberbully) are more likely to present additional risks and issues.<sup>40,41</sup> However causality cannot be inferred from our data, therefore the compensatory Internet use theory could not be examined.

In addition, it should be noted that a clear relationship exists between the roles associated with cyberbullying and those associated with problematic Internet use. As such, the possibility of presenting PIU varies between OR = 3.21 in the case of cyberbullies to OR = 7.59 in the case of

cyberbully–victims. The trend of these data is consistent with other studies,<sup>16</sup> although the values found in this research are significantly higher and confirms the posed hypothesis.

This research has several theoretical and practical implications for professionals. On the one hand, the problem of cyberbullying is associated with PIU, so knowing the profile of problematic use can help in determining the approach of an intervention in school and clinical settings. Likewise, it is important that cyberbullying prevention programmes also contemplate the adequate management of Internet use beyond the recognition of inappropriate behaviour. The relationship between a relational risk such as cyberbullying and another risk associated with a dysfunctional use of technology suggests the need to explore the common foundations of these problems.

It should be noted that this study has some limitations that should be taken into consideration. Firstly, the sole use of self-report questionnaires may influence the results due to social desirability. Secondly, some samples of problematic use profiles are small, even if the initial sample was particularly high. Finally, this is a novel exploratory approach to this problem and should be taken as such. Therefore, we propose that future studies employ a longitudinal design and aim to include more informants along with other Internet risks. Furthermore, it would also be of great interest to study the coping styles associated with these profiles.

In conclusion, there are different profiles of Internet use according to the role played in cyberbullying, with cyberbully–victims reporting the most negative consequences regarding their use of the Internet. Likewise, a relationship exists between a person’s problematic use of the Internet and their role as a cybervictim, cyberbully or cyberbully–victim.

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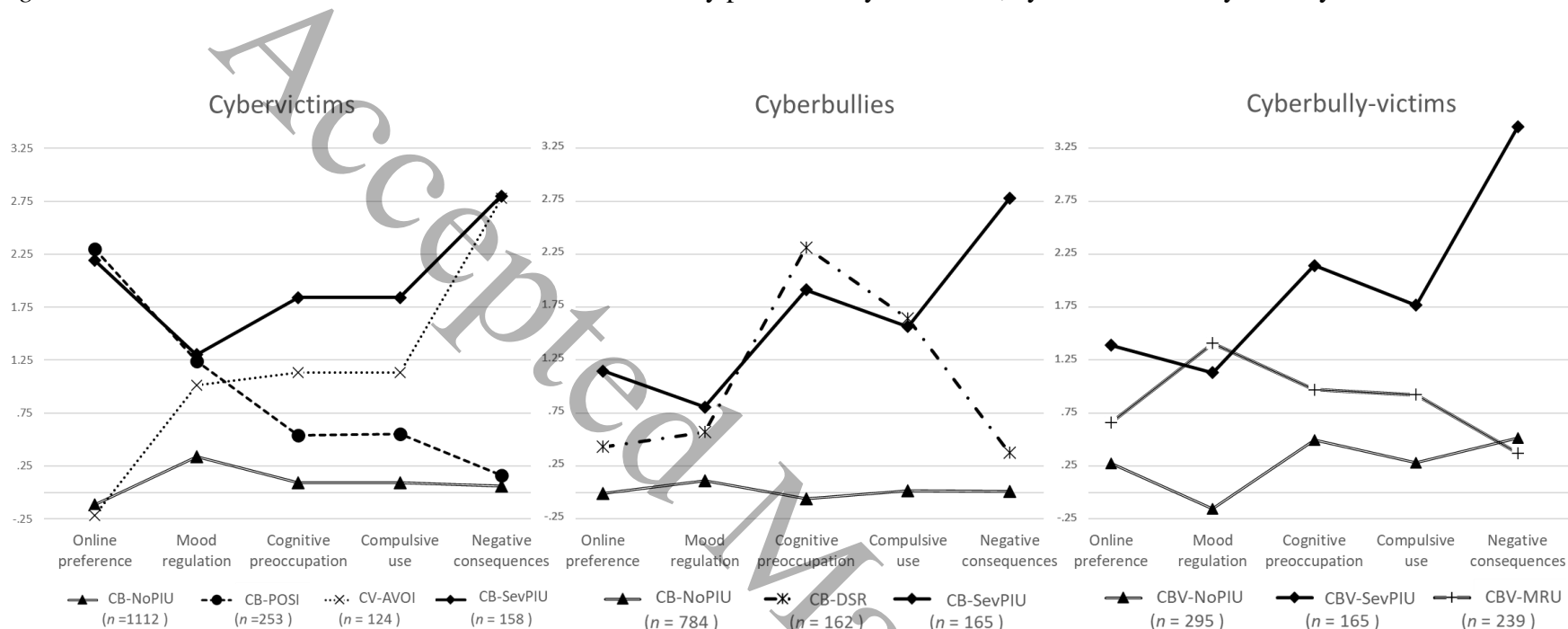
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Figure 1. Standardized scores in the five dimensions of PIU by profile for cybervictims, cyberbullies and cyberbully-victims



Note. CV-NoPIU = Cybervictims- No PIU; CV-POSI = Cybervictims Preference for Online Social Interaction; CV-AVOI= Cybervictims Online Social Interaction Avoidance; CV-SevPIU = CyberVictims Severe PIU; CB-NoPIU = CyberBullies - NoPIU; CB-DSR = Cyberbullies Deficient Self Regulation; CB-SevPIU = Cyberbullies Severe PIU; CBV-NoPIU = Cyberbully-victims No PIU; CBV-SevPIU = Cyberbully-victims Severe PIU; CBV-MRU = Cyberbully-victims Mood Regulation User. The displayed scores are standardized.

Table 1

*Correlations, descriptive statistics, and reliability of cyberbullying and PIU dimensions*

	1.	2.	3.	4.	5.	6.	7.	$\omega$
1. Cybervictimization	—							.79
2. Cyberaggression	.449	—						.86
3. Online Preference	.190	.149	—					.85
4. Mood Regulation	.236	.167	.483	—				.83
5. Cognitive Preoccupation	.224	.255	.445	.468	—			.80
6. Compulsive Use	.196	.211	.391	.428	.727	—		.83
7. Negative Consequences	.276	.256	.427	.382	.591	.606	—	.76
Mean	0.74	0.96	5.60	8.15	6.58	5.86	4.58	—
SD	1.60	2.11	3.35	4.56	3.90	3.34	2.69	—
Range	0-22	0-30	3-18	3-18	3-18	3-18	3-18	—

Note:  $\omega$  = McDonald's Omega. All correlations are significant at  $p < .001$

Table 2

*Fit of the profile models based on the PIU dimensions for cybervictims, cyberbullies and cyberbully-victims*

	# pro files	AIC	BIC	S-BIC	LL	AWE	Lo-Mendell (p)	Entr.	Prob Min-max	N per group				
										1	2	3	4	5
Cybervictims										1647				
	2	24940.78	25081.36	24998.76	-12444.39	24898.21	441.99 (.00)	0.85	.90-.97	1244	403			
	3	24759.15	24932.17	24830.51	-12347.58	24709.30	189.37 (.00)	0.82	.80-.96	1143	215	289		
	<b>4</b>	<b>24469.21</b>	<b>24674.66</b>	<b>24553.94</b>	<b>-12196.60</b>	<b>24412.07</b>	<b>295.30 (.00)</b>	<b>0.87</b>	<b>.81-.97</b>	<b>1112</b>	<b>253</b>	<b>158</b>	<b>154</b>	
	5	24381.04	24618.93	24479.15	-12146.52	24316.62	97.97 (.02)	0.77	.81-.87	606	492	265	154	130
Cyberbullies										1111				
	2	16467.62	16597.96	16515.38	-8359.96	16729.01	297.23 (.01)	0.87	.88-.98	924	187			
	<b>3</b>	<b>16313.72</b>	<b>16474.14</b>	<b>16372.50</b>	<b>-8207.81</b>	<b>16429.26</b>	<b>162.05 (.00)</b>	<b>0.83</b>	<b>.79-.96</b>	<b>784</b>	<b>165</b>	<b>162</b>		
	4	16203.28	16393.77	16273.07	-8124.86	16267.90	98.52 (.35)	0.86	.85-.96	719	179	167	46	
Cyberbully-victims										699				
	2	11037.94	11156.75	11074.19	-5792.97	11594.63	114.69 (.00)	0.77	.85-.96	520	179			
	<b>3</b>	<b>10971.58</b>	<b>11117.80</b>	<b>11016.20</b>	<b>-5453.79</b>	<b>10920.61</b>	<b>76.42 (.00)</b>	<b>0.82</b>	<b>.85-.88</b>	<b>295</b>	<b>239</b>	<b>165</b>		
	4	10914.54	11088.18	10967.52	-5419.27	10855.92	67.65 (.08)	0.87	.79-.97	510	108	50	31	

Note: AIC = Aikake Information Criterion; BIC = Bayesian Information Criterion; S-BIC = Sample-Size Adjusted BIC; AWE = Approximate Weight of Evidence; LL = Logarithm Likelihood; Lo-Mendell = Lo-Mendell-Rubin Adjusted LRT Test; Entr. = Entropy; Prob min-max: Classification Probabilities for the Most Likely Latent Class Membership. The selected model is shown in boldface.

Table 3

Mean scores and Standard Deviations in PIU dimension by profiles and ANOVA over each role

Role	PIU Profile	Online preference	Mood Regulation	Cognitive preoccupation	Compulsive use	Negative consequences
		<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
CV	No PIU <sup>CV1</sup>	5.05 (2.17)	9.71 (4.44)	5.90 (3.28)	6.85 (3.80)	4.73 (1.99)
	POSI <sup>CV2</sup>	13.32 (2.43)	13.82 (3.74)	7.43 (3.57)	8.45 (3.91)	5.01 (1.85)
	Avoidance <sup>CV3</sup>	4.86 (1.85)	12.74 (3.74)	9.37 (4.17)	11.32 (3.80)	12.08 (2.20)
	Severe PIU <sup>CV4</sup>	12.97 (2.78)	14.11 (3.71)	11.76 (3.71)	12.56 (3.73)	12.15 (2.47)
	<i>F(df)</i> $\eta^2$	<i>F</i> (3, 1643) = 1342.68***; $\eta^2 = .710$	<i>F</i> (3, 1643) = 107.66***; $\eta^2 = .164$	<i>F</i> (3, 1643) = 159.74***; $\eta^2 = .226$	<i>F</i> (3, 1643) = 141.59***; $\eta^2 = .205$	<i>F</i> (3, 1643) = 1015.80***; $\eta^2 = .650$
Post hoc Games-Howell	CV1 < CV2, CV4 CV2 > CV3; CV3 < CV4	CV1 < CV2, CV3, CV4	CV1 < CV2, CV3, CV4 CV2 < CV3, CV4; CV3 < CV4	CV1 < CV2, CV3, CV4; CV2 < CV3, CV4	CV1 < CV3, CV4; CV2 < CV3, CV4	
CB	No PIU <sup>CB1</sup>	5.58 (2.94)	8.66 (4.30)	5.40 (2.31)	6.64 (3.39)	4.62 (1.86)
	DSR <sup>CB2</sup>	7.06 (3.57)	10.74 (4.58)	13.34 (2.43)	12.99 (3.36)	5.59 (2.15)
	Severe PIU <sup>CB3</sup>	9.45 (3.97)	11.82 (4.02)	12.00 (3.34)	12.70 (3.93)	12.08 (2.52)
	<i>F(df)</i> $\eta^2$	<i>F</i> (2, 1108) = 103.98***; $\eta^2 = .158$	<i>F</i> (2, 1108) = 45.59***; $\eta^2 = .076$	<i>F</i> (2, 1108) = 981.723***; $\eta^2 = .639$	<i>F</i> (2, 1108) = 369.72***; $\eta^2 = .400$	<i>F</i> (2, 1108) = 936.92***; $\eta^2 = .628$
	Post hoc Games-Howell	CB1 < CB2 < CB3	CB1 < CB2, CB3	CB1 < CB2, CB3 CB2 > CB3	CB1 < CB2, CB3	CB1 < CB2 < CB3
CBV	No PIU <sup>CBV1</sup>	6.56 (3.15)	7.48 (2.72)	7.28 (3.33)	7.71 (3.58)	5.99 (2.52)
	MR User <sup>CBV2</sup>	7.83 (4.24)	14.57 (2.43)	8.85 (3.95)	10.18 (4.16)	5.59 (2.30)
	Severe PIU <sup>CBV3</sup>	10.02 (4.40)	13.22 (3.29)	12.56 (3.55)	13.25 (3.57)	13.73 (2.49)
	<i>F(df)</i> $\eta^2$	<i>F</i> (2, 696) = 42.59***; $\eta^2 = .109$	<i>F</i> (2, 696) = 485.22***; $\eta^2 = .582$	<i>F</i> (2, 696) = 114.23***; $\eta^2 = .247$	<i>F</i> (2, 696) = 114.227***; $\eta^2 = .248$	<i>F</i> (2, 696) = 665.36***; $\eta^2 = .657$
	Post hoc Games-Howell	CBV1 < CB2 < CB3	CBV1 < CVB2 < CVB3	CBV1 < CBV2 < CBV3	CBV1 < CBV2 < CBV3	CBV1, CBV2 < CBV3

Note: CV = Cibervictims; CB = Cyberbullies; CVB = Cyberbully-victims; POSI = Preference for Online Social Regulation; DSR = Deficient Self Regulation; MR = Mood Regulation; *M* = Mean; *SD* = Standard Deviation; *F* = Fishers *F*; *df* = degrees of freedom;  $\eta^2$  = eta squared; \*\*\* =  $p < .001$

Table 4

ANOVA of scores in cybervictimization and cyberaggression by LPA PIU profile

Role	PIU Profile	Cyber victimization	Cyber aggression
		<i>M (SD)</i>	<i>M (SD)</i>
CV	No PIU <sup>CV1</sup>	4.25 (2.06)	—
	POSI <sup>CV2</sup>	4.28 (1.78)	—
	Avoidance <sup>CV3</sup>	4.70 (1.80)	—
	Severe PIU <sup>CV4</sup>	5.17 (3.07)	—
	<i>F(df)</i>	<i>F</i> (3, 1643) = 9.81***	—
	$\eta^2$	$\eta^2 = 0.81$	—
	Post hoc Games-Howell	CV1 < CV4	—
CB	No PIU <sup>CB1</sup>	—	5.83 (3.41)
	DSR <sup>CB2</sup>	—	5.37 (2.43)
	Severe PIU <sup>CB3</sup>	—	7.33 (6.03)
		<i>F(df)</i>	—
	$\eta^2$	—	$\eta^2 = 0.23$
	Post hoc Games-Howell	—	CB2 < CB3
CBV	No PIU <sup>CBV1</sup>	5.15 (2.96)	7.74 (4.84)
	MR User <sup>CBV2</sup>	4.56 (1.91)	6.20 (3.27)
	Severe PIU <sup>CBV3</sup>	7.22 (4.73)	9.64 (5.93)
		<i>F(df)</i>	<i>F</i> (2, 696) = 36.16***
	$\eta^2$	$\eta^2 = 0.94$	$\eta^2 = 0.71$
	Post hoc Games-Howell	CBV1 > CBV2 CBV2 < CBV3	CBV1 > CBV2, CBV1 < CBV3 CBV2 < CBV3

Note: CV = Cybervictim; CB = Cyberbullies; CBV = Cyberbully victims; *M* = Mean; *SD* = Standard Deviation; *F* = Fishers *F*; *df* = degrees of freedom;  $\eta^2$  = eta squared; \*\*\* =  $p < .001$