

Socio-emotional ability, temperament and coping strategies associated with different use of Internet in Internet addiction

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Abstract. – OBJECTIVE: The aim of the present study was to compare socio-emotional patterns, temperamental traits, and coping strategies, between a group of Internet addiction (IA) patients and a control group.

PATIENTS AND METHODS: Twenty-five IA patients and twenty-six healthy matched subjects were tested on IA, temperament, coping strategies, alexithymia and attachment dimensions. Participants reported their prevalent Internet use (online pornography, social networks, online games).

RESULTS: The IA patients using Internet for gaming online showed a greater attitude to novelty seeking and a lower tendency to use socio-emotional support and self-distraction compared to patients using Internet for social networking. Moreover, they showed a lower level of acceptance than patients using Internet for pornography. In the control group, the participants using Internet for online gaming showed higher levels of IA, emotional impairments and social alienation compared to social-networks and pornography users.

CONCLUSIONS: Findings showed a higher psychological impairment in gaming online users compared to social networking and online pornography users.

Key Words:

Internet addiction, Internet use, Social networking, Online pornography, Online gaming.

Introduction

Internet addiction (IA) is a clinical condition among the behavioural addictions¹ that shares similar features with depression², ADHD³, gam-

bling⁴, anxiety and obsessive symptoms⁵. The numerous comorbidities make it difficult to investigate the problem of causality of IA^{3,5}. Several studies consider IA as a new psychiatric disorder^{1,6}; on the other hand, many authors define certain individuals, who could have problematic Internet use in relation to specific online activities, such as gambling, gaming, chatting or pornography⁷, secondary to a preexistent disorders¹. The different Internet activities complicate the definition of IA and it's doubtful whether the underlying mechanisms that cause the addictive behavior are the same in the various types of IA (e.g., online sexual addiction, online gaming, and social network)⁸. It seems that there are differences in the "addictive" potential of the various Internet activities⁹. Moreover, the hours spent online are not enough to determinate Internet addiction¹⁰. Few previous studies tried to investigate the association between IA and different type of Internet activities. An interesting study demonstrated an association between compulsive Internet Use and online gaming, rather than other Internet uses⁹. Moreover, Beutel et al⁸ reported an association between the problematic Internet use and the preference for gaming online activity.

The aim of the present work was to compare socio-emotional patterns, temperamental traits, and coping strategies, between a group of patients who asked for a clinical consultation for IA and a control group. The suggestion was that IA patients would show lower socio-emotional abilities and poorer temperament and maladaptive coping strategies compared to control subjects, and that online gaming would be associated with a greater

impairments than pornography and social networking Internet uses.

Patients and Methods

Patients

The patients were recruited at the hospital-based psychiatric service for IA at Gemelli University Hospital (Rome, Italy). The control (CNT) group was composed by healthy subjects -matched for age and sex- who, voluntarily, accepted to participate in the study. Exclusion criteria were: presence of other psychiatric disorders (axis I and II of DSM-IV¹¹), neurocognitive deficits, dementia, mental retardation, and current alcohol or drug abuse declared by the subject.

Methods

The Ethics Committee of the Dynamic and Clinical Psychology Department of Sapienza University approved this study. IA patients and healthy subjects were tested for IA, temperament characters, coping strategies, alexithymia, and attachment dimensions. IA interview was composed by eight items focused on the absence/presence of eight behaviors or feelings: excessive time devoted to internet use, difficulty cutting down on online time, lack of sleep, fatigue, declining grades or poor job performance, apathy and racing thoughts, decreased investment in social relationships and activities, and irritability². Each participant reported his own prevalent Internet use (online pornography, social networks, online games).

Psychological Assessment

The following self-report tests were administered in a single session, after the psychiatric interview.

The Internet Addiction Test (IAT)² is associated with Internet addiction and assesses psychological addictions, compulsive use, school problems, sleep, family and temporal organization.

The Temperament and Character Inventory-Revised (TCI-R)¹² evaluates four temperaments: novelty seeking (NS), harm avoidance (HA), reward dependence (RD), persistence (P); and three characters: self-directedness (SD), cooperativeness (CO), and self-transcendence (ST).

The Coping Strategies Scale (COPE)¹³ consists in 15 subscales that assess coping strategies: active coping (1), planning (2), using emotional social support (3), using instrumental

social support (4), positive reframing (5), acceptance (6), religion (7), humor (8), mental disengagement (9), focus on and venting of emotions (10), denial (11), substance use (12), behavioral disengagement (13), self-distraction (14), self-blame (15).

The Toronto Alexithymia Scale (TAS-20)¹⁴ is the most commonly used measure of alexithymia. The TAS-20 comprised three factors: difficulty in describing feelings subscale (F1); difficulty in identifying feelings subscale (F2); externally-oriented thinking subscale (F3).

The Inventory of Parent and Peer Attachment (IPPA-P; IPPA-G)¹⁵ assesses the multi-factorial type of attachment in adolescence referring to the peers group (IPPA-peers, 25 items) and to the parents (IPPA-parents, item 28) on three subscales: trust, communication, and alienation.

The prevalent Internet use among online pornography, social networks, and online games were reported both by patients and CNT subjects.

Statistical Analysis

Multi (Manovas: Rao r) and Univariate (Anovas: Fisher F) analyses of variance and related post hoc comparisons "group" (Internet addiction vs. control) per "type of Internet use" (online pornography (1) vs. social networks (2) vs. online games (3)) on each dependent variable were carried out in order to test the hypotheses. Two-tailed p -value $< .05$ were considered significant.

Results

The IA group ($n = 25$) was composed by online pornography group ($n = 5$; 25.8 ± 8.0 years), social networks group ($n = 6$; 21.2 ± 7.0 years) and gaming online group ($n = 14$; 21.4 ± 11.3 years); the CNT group ($n = 26$) was composed by online pornography group ($n = 6$; 39.8 ± 8.9 years), social networks group ($n = 15$; 23.9 ± 7.8 years) and gaming online group ($n = 5$; 19.2 ± 3.0 years). There was a significant effect of the Internet use in age ($F(2.45) = 7.0$; $p = .002$), where online pornography users were older than the other internet users. There was not a significant difference in age between IA and CNT group ($F(1.45) = 3.2$; $p = .081$).

As regards IAT scores, there was an effect of the interaction between Group and Internet use ($F(2.45) = 13.3$; $p < .0001$). Only in the CNT group, online games users showed higher IAT scores than online pornography users ($p < .0001$).

and social networks users ($p < .0001$). Moreover, only the CNT group online pornography users presented lower IAT scores compared to social networks users ($p = .03$). As regards the hours spent online per day, in the CNT group online games users spent online more hours than pornography users ($p = .04$).

Manova analyses on TCI scales reported a significant effect of the Group (Rao $\eta^2(7.39) = 3.34$; $p = .007$). In IA group, gaming online users showed higher levels of novelty seeking compared to social networking users ($p = .004$). In the CNT group, gaming online users showed lower levels of self-directedness ($p = .04$), and higher levels of self-transcendence ($p = .001$) than social networking users; online pornography users showed lower scores of reward dependence ($p = .03$) than social networking users.

Table I reported a significant effect of the Group on COPE. In the IA group, gaming online users showed lower scores of self-distraction and use of emotional social support compared to social networking users, and lower levels of acceptance than online pornography users; social networking users presented higher levels of self-blame compared to gaming online users. In the CNT group, gaming online users showed higher levels of denial, behavioral disengagement, substance use than online pornography and social networking users; online pornography users presented lower levels of focus on emotions and self-distraction compared to social networking and gaming online users; social networking users showed greater scores of use of emotional social support than online pornography users.

As regards the TAS-20 scales, there was a significant effect of the Group ($F(1,45) = 20.9$; $p = .00001$), Internet Use ($F(2,45) = 6.4$; $p = .003$), and their interaction ($F(2,45) = 8.3$; $p = .0009$). In the IA group, there were not significant differences among the users. In the CNT group, pornography online users showed lower levels of total TAS-20 compared to social networking ($p = .0005$) and gaming online ($p < .00001$) users.

Table II showed a significant effect of the Group and of the interaction between Group and Internet use on IPPA-Parents and Peers scales. In the IA group, there were not significant differences among the uses. In the CNT group, gaming online users showed higher levels of alienation with parents and with peers compared to social networking users, higher levels of alienation with peers compared to online pornography users, and

lower levels of communication with peers compared to social networking users.

Discussion

The clinical group showed more social and emotional impairments, and spent more hours online per day compared to the control group, according with previous literature^{3,7}. The addicted patients using the social networks showed lower levels of novelty seeking and were more inclined to self-distraction and to use the socio-emotional support than the other patients. The participants in the control group using Internet for social-networks had higher emotional impairments and attitude to self-distraction than pornography online users. The use of the social networking seems specifically associated with a communicative insecurity and with a need for emotional support as suggested in a previous study¹⁷.

Moreover, the participants in the control group using Internet for online gaming showed greater emotional difficulties, levels of addiction and spent more hours online compared to the other Internet uses^{4,10,18-21}. These findings suggest higher socio-emotional impairments in online gaming activity compared to other Internet uses. It is difficult to establish whether Internet gaming could facilitate the deterioration of the socio-emotional abilities or if dysfunctional socio-emotional competencies produce a greater vulnerability to Internet gaming addiction. However, the association between Internet gaming disorder and disrupted social functioning has been previously demonstrated¹⁹.

A limitation of the study is the small size of the sample, due to the low rate of patients requesting assistance for Internet addiction in Italy. Secondly, the participants were all male, according with the low diffusion of this disorder in women.

Conclusions

We suggest that playing video games is an attempt to avoid negative emotions generated by poor relationships with parents and peers^{9,19}. It is also possible to assume in these patients the occurrence of depressive episodes that do not reach the diagnostic threshold for the diagnosis of a depressive disorder, but remain undetected and compromise social skills²². The several clinical features related to the different

Table 1. Manova Group (Internet Addiction (IA) vs. Control (CT)) per Internet use (1. online pornography vs. 2. social networks vs. 3. gaming online) on Coping Strategies (COPE) scales: Group Rao $\eta^2(15,31) = 3.2$; $p = .003$; Internet Use Rao $\eta^2(30,62) = 1.2$; $p = .302$; Group per Internet Use Rao $\eta^2(30,62) = 0.9$; $p = .580$.

COPE scales	Active coping	Planning	Using		Positive reframing	Acceptance	Religion	Humor	Focus on				Substance use	Behavioral disengagement	Self-distraction	Self-blame
			emotional support	instrumental support					Mental disengagement	emotions	Denial					
IA1 online pornography	10.4±1.8	10.2±2.2	8.2±2.1	11.2±2.2	11.0±1.2	10.2±2.6	6.8±1.9	8.0±2.8	10.6±2.1	10.4±0.5	8.4±1.1	5.6±2.1	10.0±2.0	10.6±0.5	8.6±0.9	
IA2 social networks	12.5±2.9	10.8±4.3	11.2±3.1	12.0±2.8	12.2±2.5	12.3±3.0	9.2±4.0	8.5±4.2	11.2±1.5	10.8±2.7	7.5±2.6	7.2±4.0	10.2±2.7	11.7±2.7	11.8±2.2	
IA3 gaming online	10.6±2.7	9.9±2.9	8.6±2.6	10.3±2.5	10.3±2.8	9.8±2.6	9.1±3.5	7.7±1.9	10.4±2.1	10.2±2.6	8.5±2.9	7.1±3.5	9.1±2.4	9.8±2.1	10.3±2.7	
IA group total	11.0±2.6	10.2±3.0	9.1±2.8	10.9±2.5	10.9±2.5	10.5±2.8	8.7±3.4	8.0±2.7	10.6±1.9	10.4±2.3	8.2±2.5	6.8±3.3	9.6±2.3	10.4±2.2	10.3±2.5	
CT1 online pornography	12.2±2.7	13.5±1.5	9.8±1.6	10.5±1.4	11.2±3.0	10.3±2.2	8.0±3.7	6.8±3.6	7.9±3.5	8.8±2.1	5.8±2.8	5.8±1.8	6.0±2.7	9.5±1.5	11.8±1.9	
CT2 social networks	12.7±2.0	12.2±2.6	12.9±2.7	12.7±2.3	12.8±1.6	11.3±1.3	8.7±3.9	7.9±3.9	8.7±2.4	11.1±2.1	7.0±2.8	6.6±3.0	7.5±2.4	11.5±1.6	12.1±1.9	
CT3 gaming online	11.6±2.3	12.0±0.7	12.8±2.2	11.6±2.5	12.6±1.1	11.0±1.7	11.6±3.2	9.0±4.2	10.2±2.0	12.2±0.8	10.0±2.5	11.6±2.3	10.6±2.7	11.8±1.3	12.4±1.3	
CT group total	12.3±2.2	12.5±2.2	12.1±2.6	12.0±2.3	12.4±2.0	11.0±1.6	9.1±3.8	7.9±3.8	8.8±2.6	10.8±2.2	7.3±3.0	7.4±3.3	7.8±2.9	11.1±1.7	12.1±1.7	
Total	11.7±2.5	11.3±2.8	10.7±3.1	11.4±2.5	11.7±2.4	10.7±2.3	8.9±3.6	7.9±3.3	9.7±2.5	10.6±2.3	7.8±2.8	7.1±3.3	8.6±2.7	10.8±2.0	11.2±2.3	
Post-Hoc test	N.S.	IA1<CT1*	IA2>IA3*	N.S.	N.S.	IA1>IA3*	N.S.	N.S.	IA1>CT1*	CT1<CT2*	CT1<CT3*	IA3<CT3**	IA1>CT1*	IA2>IA3*	IA1<IA2*	
			IA3<CT3**						IA2>CT2*	CT1<CT3*	CT2<CT3*	CT1<CT3**	CT1<CT2*	CT1<CT2*	CT1<CT3*	

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

Table II. Manova Group (Internet Addiction (IA) vs. Control (CT)) per Internet use (1.online pornography vs. 2.social networks vs. 3.gaming online) on social patterns with parents (IPPA-Parents) and with peers (IPPA-Peers) scales. Group Rao $r(6,40) = 4.0$; $p = .003$; Internet Use Rao $r(12,80) = 1.5$; $p = .141$; Group per Internet Use Rao $r(12,80) = 1.91$; $p = .044$.

	IPPA-parents trust	IPPA-parents communication	IPPA-parents alienation	IPPA-peers trust	IPPA-peers communication	IPPA-peers alienation
IA1 online pornography	25.0 ± 3.6	28.2 ± 2.3	22.0 ± 5.5	26.8 ± 4.3	20.8 ± 2.9	18.4 ± 2.3
IA2 social networks	29.0 ± 4.1	33.2 ± 5.3	20.2 ± 5.3	30.7 ± 5.6	22.0 ± 2.9	18.5 ± 2.9
IA3 gaming online	27.6 ± 4.5	29.5 ± 4.8	22.9 ± 4.9	31.35 ± 6.4	23.8 ± 6.1	17.3 ± 2.9
IA group total	27.4 ± 4.3	30.1 ± 4.7	22.1 ± 5.0	30.3 ± 6.0	22.8 ± 5.0	17.8 ± 2.7
CT1 online pornography	31.2 ± 5.4	32.3 ± 6.0	22.7 ± 6.3	35.3 ± 7.4	28.8 ± 8.6	15.2 ± 5.9
CT2 social networks	33.6 ± 4.2	33.5 ± 3.7	18.6 ± 5.0	27.8 ± 18.0	33.5 ± 5.9	13.1 ± 4.9
CT3 gaming online	29.4 ± 3.3	33.6 ± 4.1	25.6 ± 3.4	29.6 ± 14.6	27.4 ± 1.8	22.8 ± 3.0
CT group total	32.2 ± 4.5	33.3 ± 4.2	20.9 ± 5.7	29.9 ± 15.4	31.2 ± 6.5	15.4 ± 6.0
Total	29.9 ± 5.0	31.7 ± 4.7	21.5 ± 5.3	30.1 ± 11.6	27.1 ± 7.2	16.6 ± 4.8
Post Hoc	IA1<CT1; $p = .02$ IA2<CT2; $p = .03$	N.S.	CT2<CT3; $p = .01$	N.S.	IA1<CT1; $p = .02$ IA2<CT2; $p = .0001$ CT2>CT3; $p = .04$	IA2>CT2; $p = .007$ IA3<CT3; $p = .01$ CT1<CT3; $p = .003$ CT2<CT3; $p = .0001$

Internet activities suggest to consider the specificity of the social and emotional impairments related to the different Internet uses before the therapeutic planning^{20,23}.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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