

# Problematic Internet Use: Prevalence and Related Factors in a sample of Italian High School Students

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## Background:

Problematic Internet Use (PIU) has emerged in recent years as a problem among teenagers worldwide. Despite the large literature, no consensus has been reached on diagnostic criteria, and only limited data are available on potential risk factors. As shown in table 1, prevalence of PIU differs between countries, and the data are not completely comparable due to different cut-offs of Internet Addiction Test (IAT) used to classify problematic users.

**Table 1. Prevalence of PIU in studies using different cut-offs of IAT to classify problematic users**

<b>PIU: IAT score <math>\geq 50</math></b>	2012 Italy Age 14-21 ( $\mu$ 16.4) N: 2,533, <b>PIU: 6%</b>	2011 China Age 10-24 ( $\mu$ 16.4) N: 17,599, <b>PIU: 8%</b>
	2011 China Age 10-23 ( $\mu$ 15.6) N: 14,296, <b>PIU: 12%</b>	2009 Italy Age 14-19 ( $\mu$ 16.3) N: 98, <b>PIU: 36%</b>
<b>PIU: IAT score 40-69</b>	2008 Greece Age n.a. ( $\mu$ 15.2) N: 953, <b>PIU: 14%</b>	2011 Greece Age n.a. ( $\mu$ 14.7) N: 866, <b>PIU: 21%</b>
	2006 South Korea Age 15-16 ( $\mu$ n.a.) N: 1,573, <b>PIU: 40%</b>	2009 South Korea Age n.a. ( $\mu$ 16.7) N: 2,336, <b>PIU: 50%</b>

## Objective:

To measure prevalence of PIU and study possible risk factors in a sample of high school Italian students.

## Methods:

This cross-sectional study was carried out in the 2010/2011 school year in 25 high schools of the Pinerolo geographical area in province of Turin (North West of Italy). Overall, 97 classes were included in the sample, one class per year for each type of school, chosen according to teacher availability. PIU was measured using the Internet Addiction Test. Information on socio-demographic characteristics was gathered together with information on the patterns of Internet use. Questionnaires were administered between October 2010 and March 2011.

Multivariate logistic regression models were built to study factors related with PIU.

## Results:

2,022 students completed the questionnaire; 99.4% of them declared to use Internet (99.4%). The prevalence of PIU was 12.0%. Multivariate logistic regression analysis revealed that attending a vocational school (OR=1.62; 95% CI 1.07-2.47), being of a younger age (OR=1.71; 95% CI 1.08-2.70), feeling lonely (OR=3.65; 95% CI:2.05-6.51), visiting pornographic sites (OR=2.44; 95% CI 1.62-3.69), logging onto the Internet several times a week, and connecting for at least two hours consecutively (OR = 2.34; 95% CI 1.60-3.41) were significantly related to the risk of PIU, while searching for information for school purposes was a protective factor (OR=0.48; 95% CI 0.33-0.70). No gender differences were detected.

## Conclusions:

The high prevalence of PIU observed in this population suggest particular care to be applied by teachers and parents in checking at-risk habits of pupils when using Internet, and the need of public health practitioners to plan preventive interventions.

## Characteristics of pupils and patterns of use

Characteristics	Problematic Users N = 226 n (%)	Non Problematic Users N = 1,660 n (%)	Adj Odds Ratios (95% CI)	p-value
Gender	Female	101 (44.7)	1	0.491
	Male	125 (55.3)	0.87 (0.59-1.29)	
Age groups	18-19	39 (17.3)	1	0.022
	16-17	77 (34.1)	0.86 (0.54-1.36)	
	14-15	110 (48.7)	1.71 (1.08-2.70)	
Type of school	Lyceum	57 (25.2)	1	0.024
	Technical	66 (29.2)	1.32 (0.87-2.01)	
	Vocational	103 (45.6)	1.62 (1.07-2.47)	
Place of connection to Internet	At home	137 (60.6)	1	0.171
	Everywhere	86 (38.1)	1.23 (0.88-1.72)	
	Internet point	3 (1.3)	3.31 (0.75-14.63)	
Internet connection checked by parents	Yes	25 (11.1)	1	0.532
	No	201 (88.9)	0.85 (0.51-1.42)	
Frequency of Internet use per week	Once per week or less	7 (3.1)	1	0.003
	Several times a week	25 (11.1)	1.82 (0.69-4.79)	
	Daily	97 (42.9)	3.97 (1.57-9.99)	
	Several times a day	97 (42.9)	8.17 (3.18-21.03)	
Time spent for Internet use without interruption (daily)	Less than 2 hours	57 (25.2)	1	< 0.001
	2-3 hours	99 (43.8)	2.34 (1.60-3.41)	
	4-5 hours	34 (15.0)	4.64 (2.67-8.08)	
	More than 5 hours	36 (15.9)	5.90 (3.26-10.67)	
Feel alone	Never	72 (31.9)	1	< 0.001
	Sometimes	126 (55.8)	2.25 (1.56-3.24)	
	Often	28 (12.4)	3.65 (2.05-6.51)	

## Purposes of internet use

Characteristics	Problematic Users N = 226 n (%)	Non Problematic Users N = 1,660 n (%)	Adj Odds Ratios (95% CI)	p-value
Specific information searching	No	83 (36.7)	1	< 0.001
	Yes	143 (63.3)	0.48 (0.33-0.70)	
File transferring (music or other)	No	32 (14.2)	1	0.063
	Yes	194 (85.8)	1.52 (0.98-2.38)	
Using forums	No	55 (24.3)	1	0.512
	Yes	171 (75.7)	0.88 (0.59-1.30)	
On-line chatting	No	37 (16.4)	1	0.075
	Yes	189 (83.6)	1.48 (0.96-2.29)	
E-mailing	No	120 (53.1)	1	0.348
	Yes	106 (46.9)	0.85 (0.60-1.20)	
Role-play games on-line (MUD)	No	176 (77.9)	1	0.581
	Yes	50 (22.1)	1.13 (0.74-1.73)	
Indiscriminate surfing	No	171 (75.7)	1	0.655
	Yes	55 (24.3)	1.10 (0.72-1.68)	
Visit porn websites	No	144 (63.7)	1	< 0.001
	Yes	82 (36.3)	2.44 (1.62-3.69)	
On-line shopping	No	190 (84.1)	1	0.361
	Yes	36 (15.9)	0.80 (0.50-1.29)	
On-line gambling	No	190 (84.1)	1	0.601
	Yes	36 (15.9)	1.15 (0.67-1.98)	