

## COVID-19 PANDEMIC AND INTERNET ADDICTION IN YOUNG ADULTS: A PILOT STUDY ON POSITIVE AND NEGATIVE PSYCHOSOCIAL CORRELATES

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## Abstract

**Objective:** During and after the lockdowns of the COVID-19 pandemic period, a strain was put on young adults who have taken refuge in the problematic use of internet, social media, gaming, and gambling. This paper aims to investigate possible correlates of Internet Addiction Disorder (IAD), hypothesizing anxiety, depression and perceived stress would promote addiction, while mindfulness skills, resilience and socialization would, conversely, hamper IAD, and promote, consequently, a more functional internet use.

**Method:** A pilot study was carried out with a sample of 31 young adults, recruited through a snowball sampling using social networks. Participants filled out an online questionnaire including the following measures: Internet Use, Abuse and Addiction (UADI), Beck Depression Inventory (BDI-II); State-Trait Anxiety Inventory (STAI-Y); Perceived Stress Scale (PSS); Five Facet Mindfulness Questionnaire (FFMQ); Mindfulness Attention and Awareness Scale (MAAS); Resilience Scale (RS-14). It was also administered an ad hoc questionnaire for the assessment of socialization behaviour (6 items) and gambling (2 items).

**Results:** All the measures, but socialization, showed adequate reliability. Our sample showed high levels of anxiety, stress, IA and gambling, while presenting low levels of resilience, the mindful skill of no-reactivity and socialization. The first hypothesis was confirmed, finding positive and significant correlations between Internet Addiction on one side and PSS, STAI-Y1, STAY-2, and BDI II on the other side. We also partially confirmed the second hypothesis about UADI negatively correlated with both RS-14 and Mindful Acting. Finally, no correlations were found between Gambling and IA.

**Conclusions:** In conclusion, the more one perceives an emotional overload with less stress-control, high anxiety, and depression, and the less one can leverage on the skills of mindful acting and resilience, the more one uses the internet as a strategy to escape from a threatening reality.

**Key words:** internet addiction, emerging adulthood, COVID-19 pandemic, resilience, mindfulness

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## Introduction

Considerable rates of IA Disorders (IAD) and Internet Gaming Disorders (IGD) worldwide show Internet Addiction (IA) as a serious issue to address in modern society, especially for young adults and “digital natives” (Lozano-Blasco et al., 2022; Primack et al., 2017; Stevens et al., 2021).

Recently, COVID-19 pandemic has brought an increase of both internalizing and externalizing emotional and behavioural outcomes such as anxiety, depression, post-traumatic stress, paranoia, and sleep disorders (Ahmed et al., 2020; Conversano, 2021;

González-Sanguino et al., 2020; Hossain et al., 2020; Marazziti et al., 2020; Orrù et al., 2021a; Şimşir et al., 2022), together with an escalation of aggressive behaviour and domestic abuse (Boxall et al., 2020). The invitation of governments and educational institutions to stay at home, spending more time on tech devices to communicate, work or study, became a way to continue social activities through online platforms. Nevertheless, a major psychological consequence of the COVID-19 pandemic and its restrictions turned out to be the higher incidence of IA, which might be considered as a new public health issue; research showed how internet use increased by more than 52% compared

to the pre-pandemic period (Jokic-Begic et al., 2020; Khubchandani et al., 2021; Siste et al., 2020). Indeed, psychosocial effects of the pandemic were identified in increase of self-harm and suicidal behaviours, eating disorder, internet and video-games's addiction, sleeping disorders (Wang et al., 2020), panic and anxiety disorders (Codagnone et al., 2020; Li & Hasson, 2020; Qi et al., 2020).

The need of socialization especially in youngsters could reasonably motivate the increase of internet use together with the increased Covid anxiety that has driven to compulsive online searches for health information (Magson et al., 2021). Online platforms were used as network supporting for quick communication about health (Monacis et al., 2018; Young, 2015) but they also contributed to spread incorrect medical information (Jokic-Begic et al., 2020) amplifying risk perception, anxiety, and fear that in turn gave rise to obsessive-compulsive behaviours and cyberchondria (Mrayyan et al., 2022; Orrù et al., 2021b; Rohilla et al., 2020).

Despite the high incidence of this phenomenon even before the pandemic, the fifth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-V) did not yet include IAD as a different category (APA, 2013) but in the range of the impulse-control disorders (Liu & Potenza, 2007). Indeed, IAD implies being out of one's control, significantly distressing, time-consuming, and leading to difficulties in one's social, professional, or financial life (Shapira et al., 2000). Therefore, internet problematic use was associated with strained social and intimate relationships, less time spent with family and at work, and the emergence or worsening of mental health issues (Beard, 2005; Chou et al., 2005; Mitchell, 2000).

Although several research have investigated psychological factors related to IA, such as anxiety, depression, loneliness, and social isolation (Ceyhan & Ceyhan, 2008; Tokunaga & Rains, 2010; Young & Rogers, 1998), the causal relationship between these variables has not yet been established (Chou et al., 2005). In the attempt to discover a causal order in the empirical relationships between subjective feelings of loneliness and depression and symptoms of Internet Addiction, Yao and Zhong (2014) found that excessive Internet use increased feelings of loneliness over time and that online social contacts might not be an effective replacement for offline interactions, suggesting the existence of a worrisome vicious cycle between IAD and loneliness.

For this purpose, this paper investigates the aforementioned variables as positive correlates of IAD that could work as risk factors in young adults during the pandemic (Ozturk & Ayaz-Alkaya, 2021; Putri et al., 2022), together with negative correlates, such as mindfulness skills and resilience, that could work as protective factors.

### Positive correlates of IAD: anxiety, depression, and perceived stress in emerging adults

Emerging adulthood was defined as a critical period in the crystallization of internet problematic use especially during pandemic, because of the combination of social and environmental distress with isolation and fear of the pandemic (Dubey & Tripathi, 2020; Kandell, 1998; Lozano-Blasco et al., 2022; Masaeli & Farhadi, 2021). Young adults, especially college students, face pressure from their social context, the commitment to study, friends, and families (Yan et al., 2014) which might result either in a "positive" push to increase

performance skills or in a negative overload potentially at risk for mental health issues (Pulido Rull et al., 2011; Putwain, 2007).

As regards psychological risk factors, young adults who experience depression and loneliness would be particularly vulnerable to developing an IA. Lack of social support, loneliness and depression were already shown to be associated in a bidirectional way with problematic internet use in college students (Ceyhan, 2011; Günay et al., 2018; Kim et al., 2009). They would display irrational beliefs, i.e. how the offline world is terrible and/or how the online world is safer (Davis, 2001), and feelings of a lack in social skills, preferring anonymous and more manageable computer-mediated contacts rather than face-to-face interactions (Caplan, 2003, 2010; Joorabchi et al., 2022; Tateno et al., 2019). During the pandemic, IA was studied as a coping strategy aimed to reduce uncomfortable feelings like loneliness, depression, and social anxiety (Dong et al., 2020; Shadzi et al., 2020; Cui & Chi, 2021).

High anxiety also predicted IA through the mediation of the fear of disease during the COVID-19 pandemic (Servidio et al., 2021; Stavropoulos et al., 2017). Thus, the more people were anxious, the more they were scared to contract a disease, and the more they would refer to internet as a coping strategy to escape from unpleasant reality (Patias et al., 2021). This attempt to reduce discomfort turned out to be a dysfunctional choice since the addicted behaviour would conversely reinforce feelings of loneliness contributing to other psychological disorders (Akin & Iskender, 2011; Yao & Zhong, 2014; Young & Rogers, 1998), such as depression and, providing odds of long-term mental illness, especially for adolescents and emerging adults (Arslan & Coşkun, 2022; Ferraro et al., 2006; Hasan, 2019; Muratori & Ciacchini, 2020; Schimmenti & Caretti, 2010, 2017). It is widely known that some psychological issues, such as depression, anxiety, and PTSD after traumatic events, tend to be recursive and can lead to long-term damage to mental and physical health (Carmassi et al., 2014; Dell'Osso et al., 2011; Dell'Osso et al., 2015; Di Giuseppe et al., 2020; Iasevoli et al., 2012; Miniati et al., 2021; Orrù et al., 2009; Orrù et al., 2020; Piccinni et al., 2012; Sartori et al., 2017).

Furthermore, IA has been framed as a dysfunctional coping mechanism to deal with high perceived stress (Gong et al., 2021). COVID-19 could be conceived as a collective and environmental stressor that might generate anxiety and avoidant coping strategies or if for instance it is accompanied by high self/collective efficacy might promote more functional coping strategies (Scafuto & La Barbera, 2016). Perceived stress was studied as a direct predictor of IA and an indirect predictor through the mediation of procrastination: when people are stressed, they may avoid unpleasant emotions through procrastination, that is delaying a behaviour until subjective discomfort is experienced. Internet use allows procrastination, giving an immediate pleasure and entertainment and at the same time encouraging the experience of flow, that is the overall feeling of a full engagement in an action (Gong et al., 2021). Hence, the flow experience may moderate the relationship between perceived stress and IA, showing that individuals who are more likely to experience online flow, may be more prone to use the Internet as an avoidance strategy to deal with stress. A meta-analysis showed that an inadequate stress management strategy increased the chance of developing an IA (Koo & Kwon, 2014), while a review showed perceived stress to have a moderating effect on the relationship between social support and IA:

social support decreased IA in College students who less perceived stress, whereas students who were over stressed were more likely to have an IA problem in despite of social support (Chou et al., 2005).

### Negative correlates of IAD: socialization, resilience, and mindfulness

The present study also assumed that some protective factors may prevent the emergence of IA during the pandemic. For instance, a maladaptive cognitive pattern and an individual avoidant coping strategy may amplify the risk that stressful life events degenerate in IA (Li et al., 2010).

Along with the literature on mental health, particular relevance is given to socialization (vs social anhedonia), resilience, and mindfulness skills to hinder psychopathological outcomes (Barnová & Tamášová, 2018; Conversano et al., 2020a, 2020b; Di Giuseppe et al., 2021; Di Giuseppe et al., 2022; Killgore et al., 2020; Schachter et al., 2022; Song et al., 2021).

Social anhedonia may be due to a lack of offline social skills and opportunities for in-person socialization (Silvia & Kwapil, 2011). People with social anhedonia who do not derive pleasure from social contact and interaction in daily life, are at risk for IA (Guillot et al., 2016; Shen et al., 2021a). Because of their poor performance in face-to-face interactions, they perceive social interaction to be unrewarding and threatening, and address the need to communicate through online social interaction (Caplan & High, 2007; Kim et al., 2009). Yu et al. (2023) showed that social but not physical anhedonia affected IA in college students. Furthermore, social isolation during the pandemic was associated with IA especially in adolescence (Wang et al., 2020).

Although definitions have evolved over time, resilience generally refers to positive adaptation, or the capacity to keep or gain back a regular condition in the face of adversity (Bagheri Sheykhgafshe et al., 2021; Kalisch et al., 2017; Li & Hasson, 2020). Resilience, as a "rebound ability," helps people more effectively adapt to major life stressors and prevent mental health problems (Tugade & Fredrickson, 2004; Xu & Yang, 2023). Improving coping mechanisms (Tang et al., 2014) and adaptations (Yao et al., 2013) were shown to prevent the risk of addictive online behaviours.

A recent study showed that IA mediated the relationship between psychological resiliency and depressive symptoms in Korean university students (Mak et al., 2018). Hence, high resilience would produce less depression, by decreasing IA. Students who were less resilient, also were more susceptible to addictive internet behaviours (Al-Gamal et al., 2016; Robertson et al., 2018), which were instead linked to an inadequate or maladaptive defensive mechanisms (Yao et al., 2013). Moreover, high resilience did not just predict a low social media misuse (Hu et al., 2017; Taş, 2019), but it was also negatively associated with online gaming addiction (Robertson et al., 2018).

Mindfulness has been defined as the ability to pay attention to the experiences in the present moment without passing judgment on them (Kabat-Zinn, 1994; Marlatt & Kristeller, 1999), with an open attitude and curiosity. It was associated with a wide range of psychosocial factors, that promote well-being, interpersonal happy relationships (Dekeyser et al., 2008; Follette et al., 2006) and decrease of mental health issues (Conversano et al., 2020a; Ghiroldi et al., 2020; Scafuto, 2021; Scafuto et al., 2022).

Research showed mindfulness was negatively

related to IA and misuse (Arslan & Coşkun, 2022; Machimbarrena et al., 2018;), smartphone and facebook addiction (Kim et al., 2018; Zhang et al., 2020), video-gaming and pathological gambling (Riley, 2014). After a mindfulness-oriented therapy, most participants reported having learnt useful skills for stress reduction and emotion regulation and indeed did not meet any of the criteria for a video game addiction diagnosis according to standardized assessments at post-test and follow-up measures (Li et al., 2018).

Mindfulness may shield users from IA, especially by improving emotional and behavioural regulation abilities, in fact mindfulness supports stress management and positive adaptation by mediating people's reactions to stressful life events (Arslan, 2017; Keng et al., 2011) and reducing the negative impact of social isolation on IA (Arslan & Coşkun, 2022). Mindfulness might prevent addiction also by increasing cognitive processes, such as the ability to sustain attention over time and by reducing procrastination strategy for the everyday tasks (Schutte & Del Pozo De Bolger, 2020). Mindfulness practice would reduce mind-wandering levels, future-oriented and visual thoughts, and, consequently, decrease anxiety about the uncertainty of the future (Bortolla et al., 2022).

Moreover, mindfulness meditative skills, such as being aware of the present moment, were reported by the respondents as the most crucial facilitators for their well-being during the pandemic home confinement (Tanhan, 2020).

### Aims and Hypotheses

The present study first aims to explore the correlations between psychological distress, such as anxiety, depression, perceived stress, and IA after the COVID-19 pandemic. Our first hypothesis states there are positive correlations with perceived stress, anxiety, and depression, since IA could be considered an emotion-focused coping strategy to deal with social and environmental stressors, such as the pandemic.

The study also aims to investigate the relationship between addiction and protective factors such as socialization, mindfulness and resilience skills. Our second hypothesis states negative correlations would emerge between resilience, mindfulness, and level of socialization on one side and IA on another side.

### Method

#### Procedures

Participants were recruited through the snowball sampling method (via social media: Whatsapp, Facebook and Instagram). The inclusion criteria for the recruitment of participants were the followings: age 18-30 years (a) and university student status (b). At the beginning of the test, the participants were informed that their participation to the study was voluntary, and they could interrupt it at any time without needing to give any explanation and/or penalty. All the subjects accepted voluntarily to participate in the research, giving their informed consent before participating. This study did not envisage any compensation or payment for the participants.

#### Participants' demographics

The sample was composed of 31 young adults, mostly women (females 90.3%; age range  $M=26$ ;  $DS=$

8,61). Almost all the sample have already reached a bachelor's degree, were not married or co-living with partners (90,3%), with a 64.5% (20) that were full-time students of master's degree.

### Measures

Test administration included socio-demographic questions (age, gender, civil status, job), standardized questionnaires and an ad hoc questionnaire which was specifically designed to investigate socialization and gambling after the COVID-19 pandemic. The period when the research was carried out was June 2022.

Ad-hoc questionnaire is composed of six items assessing Socialization level after the first lockdown of the pandemic in May 2020 till June 2022 (see Appendix). Participants were asked to respond of a change in social relationships, and to report the frequency of some social activities, answering on a 5-point scale: 1 (never), 2 (few times a year), 3 (one-two times a month), 4 (at least one time a week), 5 (almost every day).

Examples of items were: "How often do you play sports with other people?" or "How often do you practice outdoor activities with your friends?"

The scale showed a low internal reliability ( $\alpha=.535$ ). Other two items of the ad-hoc questionnaire evaluated the frequency of gambling behavior, after the pandemic ( $r=.92^{**}$ ). The items were: "How often do you play to the new slot machine?" and "How often do you play games that allow you to win or to lose money?". Participants were asked to answer on the same 5-point scale varying from 1 (never) to 5 (almost everyday). Higher was the score, higher was the frequency of this type of play.

### Use, Abuse, IA (U.A.D.I.)

The UADI scale originally proposed and validated by Del Miglio et al. (2001), investigated the relationship between the Internet use and related psychological phenomena (attitudes, motivations, emotions, behaviours and symptoms). In our study, internal reliability was more than adequate ( $\alpha=.93$ ). IA is evaluated in five factors, every one composed of 15 items for a total of 75 items. The factors are: Escape (ESC), which investigates the Internet use as an escape from an unpleasant reality; Dissociation (DIS) which refers to dissociative symptoms, such as depersonalization; the Impact on real life (IMP) which assesses the effects of internet misuse on the relationships, work or study activities, Doing Experience (EXP) that identifies how individuals use internet to discover and put in action other aspects of themselves; finally Dependence behaviour (DEP) identifies behaviours of tolerance, abstinence, and compulsion related to internet use.

Examples of items are: "My mood often improves when I am online"; "It's difficult for me disconnect from Internet". The higher is the score and higher the risk of IA and abuse.

### Five Facet Mindfulness Questionnaire (FFMQ)

The Italian version of FFMQ is a multifactorial rating scale to assess mindfulness skills with good psychometric properties (Didonna & Bosio, 2012) (original version by Baer et al., 2006). The FFMQ is a 39-items self-report questionnaire based on a five-factor model. These factors are: Observing: how we see, feel, and perceive the internal and external world around

us and select the stimuli that require our attention and focus; Describing: the way we label our experiences and express them in words to ourselves and others; Acting with Awareness: the movements we choose after attending to the information present at the moment. Determines whether we act out of quick judgment and get out of 'autopilot mode' before responding to a situation; Non-judging: ability to be non-judgmental regarding our inner experience. It measures self-acceptance and empathy for oneself and others; Non-reacting: active detachment from negative thoughts and emotions so that we can accept their existence and choose not to react to them.

Higher total scores reflect a greater degree of state-like mindfulness (Giovannini et al., 2014). In our study, internal reliability was adequate ( $\alpha = .87$ ). Examples of the items are: "When I take a shower or a bath, I stay alert to the sensations of water on my body" (Observing); "I'm good at finding words to describe my feelings" (Describing); "I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted" (Awareness); "I believe some of my thoughts are abnormal or bad and I shouldn't think that way" (Non-judging); "When I have distressing thoughts or images, I 'step back' and am aware of the thought or image without getting taken over by it" (Non reacting).

### Mindfulness Attention and Awareness Scale (MAAS)

The MAAS is the one-dimensional scale that measures individual differences in daily mindful states, composed by 15 items (Brown & Ryan, 2003). The Italian validation showed good psychometric properties with higher scores indicating higher trait-like mindfulness (Veneziani & Voci, 2014). The internal reliability of the current study was adequate ( $\alpha = .898$ ). Some examples of the items are: "I could be experiencing some emotion and not be aware of it until some time later"; "I drive places on 'automatic pilot' and then wonder why I went there".

### Perceived Stress Scale (PSS)

The Scale was developed to measure subjective perceived stress levels; It is a measure of the degree to which situations in a person's life are assessed as stressful. The items were built to intercept the level at which people who respond to the test find their lives unpredictable, uncontrollable, or overloaded. The scale also contains several direct questions about current levels of perceived stress and refers to the last month. The PSS is a 14-item self-report scale, with higher scores indicating higher level of perceived stress (PSS; Cohen et al., 1983; Berardi et al., 2021; for the Italian validation see Mondo et al., 2021). The present study showed adequate internal reliability ( $\alpha = .853$ ). Examples of the items are: "In the last month, how often have you been upset because of something that happened unexpectedly?"; "In the last month, how often have you felt that you were unable to control the important things in your life?"

### Resilience Scale (RS-14)

The Italian version of RS-14 scale (Callegari et al., 2016) was used to measure psychological resilience, defined by the means of this scale as the capacity to live

with purpose, perseverance, equanimity, authenticity, and self-reliance, with higher scores indicating higher levels of resilience (Wagnild, 2009). In our study internal reliability was adequate ( $\alpha = .933$ ). The scale is composed by 14 items. Examples of the items are: “I usually manage one way or another”; “I keep interested in things”.

### State-Trait Anxiety Inventory (STAI-Y)

The STAI-Y is a self-report questionnaire with two scales, each of one including 20 items, that measure state and trait anxiety separately. Both scales had been validated in an Italian sample (Spielberger, 1989). In our sample, internal reliability was adequate both for STAI-Y1 ( $\alpha = .915$ ) and STAI-Y2 ( $\alpha = .926$ ). STAI-Y1 (S-Anxiety) is a transient reaction to a negative event, characterized by feelings of tension, apprehension, anxiety, and worry. The scale aims to assess how one feels "right now, at this moment". Some examples of the items were: “I feel calm”; “I am presently worrying over possible misfortunes”. STAI-Y2 (T-Anxiety), on the other hand, measures a more stable tendency to perceive stressful situations as dangerous or threatening. This scale assesses how one "generally" feels. Some examples of the items are: “I am a steady person”; “I feel that difficulties are piling up so that I cannot overcome them”.

### Beck Depression Inventory (BDI-II):

The BDI-II is a 21-items self-report questionnaire, that measures characteristic attitudes and symptoms of Depression (Beck et al., 1996) and it is based on the theoretical assumption that distorted beliefs are the core

issue in depressive mood with higher scores indicating greater severity of symptoms (Montano & Flebus, 2006). In our study, internal reliability was very good ( $\alpha = .941$ ). Some examples of the items are: *Sadness*: “I do not feel sad” (=0); “I feel sad much of the time” (=1); “I am sad all the time” (=2); “I am so sad or unhappy that I can't stand it” (=3); or *Self-Dislike*: “I feel the same about myself as ever” (=0); “I have lost confidence in myself” (=1); “I am disappointed in myself” (=2); “I dislike myself” (=3).

## Results

### Descriptive analyses

The diagonal of **table 1** shows high levels, above the cut-off, of UADI (>70), STAI Y-1 and Y-2 (>45).

RS-14 score was included in the moderately low to moderate range (65-81) while PSS was in the high range (14-26). BDI-II was the only score within the range of normality ( $M < 20$ ). Participants also used slot machines or internet gambling more than one day a week ( $M > 4$ ), while they were dedicating time to in-person socialization with friends almost one a month ( $M > 2$ ). Hence, the sample in average presented IA, higher levels of Trait and State Anxiety, difficulties to manage stress and emotions in comparison to normative populations, low in-person socialization, and weekly behaviours of internet gambling.

### Correlational analysis

Positive and significant correlations (*Pearson* coefficients) emerged between UADI on one side and PSS, STAI-Y1, STAY-2 and BDI II on the other side, in line with the first hypothesis (**table 1**). Hence, the more

**Table 1.** Analysis of correlations and descriptive statistics

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
<b>1.Gambling</b>	4.77 (0.60)												
<b>2.Socialization</b>	-0.202	2.43 (0.40)											
<b>3.UADI</b>	-0.065	-0.037	177.5 (34.8)										
<b>4.MAAS</b>	-0.146	0.227	-0.236	58.5 (15.2)									
<b>5.PSS</b>	<b>.421*</b>	-0.110	<b>.532**</b>	<b>-.432*</b>	21.3 (6.48)								
<b>6.RS-14</b>	-0.087	0.069	<b>-.369*</b>	-0.046	-0.264	68.32 (13.8)							
<b>7.Observing</b>	-0.342	-0.107	-0.131	0.051	<b>-.369*</b>	-0.100	25.34 (6.6)						
<b>8.Describing</b>	0.115	-0.090	0.034	0.235	-0.234	0.059	-0.079	28.85 (6.48)					
<b>9.Acting</b>	0.050	<b>-.445*</b>	<b>-.528**</b>	0.351	<b>-.428*</b>	0.156	0.115	0.227	25.09 (6.48)				
<b>10.Non-judging</b>	-0.067	0.079	0.099	-0.059	-0.333	0.191	0.231	0.227	-0.057	20.48 (3.60)			
<b>11.STAI-Y1</b>	0.231	-0.082	<b>.396*</b>	-0.321	<b>.646**</b>	<b>-.608**</b>	-0.292	-0.245	-0.327	-0.322	48.66 (10.23)		
<b>12.STAI-Y2</b>	0.103	0.136	<b>.557**</b>	-0.238	<b>.680**</b>	<b>-.638**</b>	-0.178	-0.152	<b>-.566**</b>	<b>-.404*</b>	<b>.796**</b>	47.82 (10.83)	
<b>13.BDI II</b>	0.156	0.295	<b>.548**</b>	-0.265	<b>.538**</b>	<b>-.628**</b>	0.038	-0.219	<b>-.664**</b>	0.001	<b>.602**</b>	<b>.742**</b>	12.69 (11.08)

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

one perceives to not have control on stressor events, is anxious and depressed, the more one shows an IA. The correlations appeared strong, with UADI-STAI-Y only presenting a moderate coefficient.

We also partially confirmed the second hypothesis about UADI negatively correlated with both RS-14 and Mindful Acting. No other facets of Mindfulness or MAAS resulted correlated with UADI. Among the psychological variables, we also found a negative correlation between MAAS, Observing on one side and PSS on the other side.

Finally, no correlations were found between Gambling and IA, showing they might be independent strategies that respond to different needs and between Socialization and UADI.

Beyond our hypotheses, further results could be underlined.

A positive correlation between Gambling and PSS emerged, that is the more one loses control on its life events, perceiving stress, the more also gambles.

A less intuitive result emerged about a negative correlation between Socialization and Acting with awareness. The facet of Mindfulness more correlated with other variables was Acting with awareness, that negatively correlated with Depression, Perceived Stress, Trait Anxiety, further than UADI. Hence, the more one dismisses the automatic pilot, focusing on the present moment, the less perceives stressors as threats, and the less is generally anxious and depressed. Trait anxiety also negatively correlated with non-reactivity, that is the more one is stably anxious the more over-reacts to thoughts, images, and feelings. Resilience negatively correlated with Anxiety and Depression, while did not with Mindful Acting. The highest correlations, as expected, were between Trait and State anxiety, and between Trait Anxiety and Depression. Second highest positive correlations were between PSS and both Anxiety scales.

All the subdimensions of UADI correlated, but dissociation and doing experience, showing that using internet to discover and put in action one's potential is a different dimension from dissociating that implies using internet as a way to dissociate from oneself, showing symptoms such as depersonalization (see **table 2**). If we compare the correlations between UADI subscales and the other variables, we found that all of them were positively associated with BDI-II (all  $p < .001$ ). Moreover, Escape was also correlated with PSS ( $r=.59^{**}$ ), STAI-Y2 ( $r=.56^{**}$ ), and Acting with awareness ( $r=-.49^{**}$ ). Furthermore, it was the only dimension to correlate with RES-14 ( $r=-.42^{*}$ ) and STAI-Y1 ( $r=.51^{**}$ ). Trait Anxiety and PSS correlated with all dimensions but EXP ( $r=.31$ ;  $r=.29$ , respectively), while Mindful Acting correlated with all but DEP ( $r=-.34$ ).

## Discussion

The aim of the present study was to start a pilot study

to identify correlates of IA behaviour, that could work as possible risk or protective factors.

A sample of young adults was recruited, showing high levels of anxiety, stress, internet addiction and gambling, while presenting low levels of resilience and socialization. The high score on distress variables might represent the psychosocial impact of pandemic-Covid 19, but we cannot infer this assumption since our sample was small and not representative. Nevertheless, we could suppose that because of the strain and social restrictions of Covid Pandemic, individuals might have less referred to their defence mechanisms, such as the use of social support, that moderate the relationship between traumatic events and distress, showing higher levels of psychological suffering (Conversano et al., 2020b; Di Giuseppe et al., 2020, 2022).

IA resulted positively correlated to distress (anxiety, depression, and perceived stress), confirming the first hypothesis. What can help individuals that suffer of anxiety, depression, and perceive less control on the stress, is also what can help for dealing with addiction. Research has already found that especially young adults who present higher level of anxiety, depression, and stress, are more likely to develop IA since the misuse of internet could be an emotion-focused coping strategy to deal with their distress (Kuss et al., 2014; Schimmenti & Caretti, 2010, 2017). Previous studies already found a negative correlation between social media addiction and self-esteem, while a positive correlation between social media addiction and anxiety (Ciacchini et al., 2023). Comparing state and trait anxiety, just the stable disposition to feel anxiety was found to predict social media addiction in adolescents (Ciacchini et al., 2023).

It is less common to interpret this relationship in the opposite side, but we could refer to other outcomes showing how addiction also reinforces depression, stress, and state anxiety (Hasan, 2019; Muratori & Ciacchini, 2020; Yao & Zhong, 2014). Misuse of internet as a strategy to deal with stress is dysfunctional in managing one's suffering, thus it could increase rather than decrease emotional distress. Indeed, for instance the use of social network increases the comparison between our self-image and the appearance of others' happier lifestyle and images, causing more social appearance anxiety (Boursier et al., 2020).

The present study also partially confirmed the second hypothesis since IA was negatively correlated with resilience and the only mindfulness' facet of acting with awareness. Psychological distress and addiction were both negatively correlated with resilience and mindfulness. Resilience was negatively correlated with distress measures along with multiple studies that found resilience trait associated with mental health (Hu et al., 2017; Mak et al., 2018). It was also negatively associated with IA, confirming what literature found between the negative link of resilience and internet misuse (Al-Gamal et al., 2016; Robertson et al., 2018; Taş, 2019).

The result of a not direct correlation between resilience and mindful acting might point out a possible

**Table 2.** Analysis of correlations between UADI subscales

	1.	2.	3.	4.	5.
<b>1. Escape (ESC)</b>	36.64(9.55)	<b>.69**</b>	<b>.58**</b>	<b>.63**</b>	<b>.76**</b>
<b>2.Dissociation (DIS)</b>	<b>.69**</b>	29.13 (7.67)	<b>.63**</b>	.28	<b>.61**</b>
<b>3.Impact on the real life (IMP)</b>	<b>.58**</b>	<b>.63**</b>	35.03(7.45)	<b>.39**</b>	<b>.45*</b>
<b>4.Doing experience (EXP)</b>	<b>.63**</b>	.28	<b>.39**</b>	32.5 (10.11)	<b>.49**</b>
<b>5.Dependence (DEP)</b>	<b>.76**</b>	<b>.61**</b>	<b>.45**</b>	<b>.49**</b>	44.19 (8.58)

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

independence of two positive paths affecting internet addiction. More research is needed to investigate this hypothesis, since no previous studies have underlined the role of both factors to prevent IA.

The facet of mindfulness significantly correlated with IA and more correlated with the other variables was acting with awareness, that is dismissing the automatic pilot and paying attention to what is in the present moment. This result seems in line with previous studies that underlined the prominent role of acting with awareness in the promotion of a coherence between attitudes and behaviours (Amel et al., 2009; Wamsler et al., 2018). The ability to dismiss the automatic pilot was also found especially relevant in increasing the regulation of behaviours and decreasing impulsive disorders (Peters et al., 2011; Royuela-Colomer et al., 2021).

Mindfulness, measured as attention and awareness (MAAS) and as Acting with awareness, was negatively associated to the level of perceived stress, hence it might work as a protective factor towards the risk of emotional overload and the perception of stressors, i.e. pandemic, as unbearable threats. This result is in line with previous studies that found a negative correlation between most facets of mindfulness and the cognitive and emotional perception of environmental and collective stressors (Scafuto, 2019).

No direct association was found between socialization and addiction, nevertheless this result does not exclude a mediated effect of socialization on addiction through other variables that we did not consider in the present study. The fear of pandemic and the regulations on social distances, including on-line teaching, might have indirectly affected students' distress (anxiety, perceived stress), and increased the choice of dysfunctional strategies to cope with stressors, that is the misuse of internet and games whereas there were not enough resilience and dispositional mindfulness. Literature considers social isolation as a serious stressor that negatively affects several aspects of mental and physical health, such as immune system response, cognitive functioning, alcohol consumption, smoke addiction and depression (Hawkey & Capitanio, 2015).

It was a counter-intuitive result to notice a negative, rather than positive, correlation between socialization and acting with awareness. This result could be interpreted considering the pandemic and social restrictions that characterized the time when the study was carried out. Indeed, when we collected our data, the lockdown was finished but still there were some social restrictions. In this peculiar period, isolation could represent a responsible and attentive behaviour to safeguard self and others, especially if vulnerable, and thus who acts dismissing the automatic pilot, may also be more attentive to comply with the emergency restrictions. Indeed, there was a paradoxical choice between the basic need of social engagement that boosts psycho-physical health, and isolation, that could prevent infection but at the same time reduce psycho-physical health (Dell'Osso et al., 2011).

As result, it seems obvious that many people, especially youth who shape their identity through interaction with peers' group, have moved to cyberspace, where they could at least keep some type of social contact. It would also be possible that young adults, such as the sample we questioned, could have misused internet expressing symptoms and indicators of addiction, and could have reacted to the paradoxical choice and its emotional overload with social disengagement, increasing solitary games as gambling,

and the escape in cyberspace:

Indeed, if we give a look to the subdimensions of addiction, it is noticeable that all of them correlated with depression, while the subdimension that highly correlated with all the variables was escape, that identifies internet use to escape from life difficulties and stressors. Escape refers to a strategy to regulate emotions, temporarily improving negative mood, and at the same time to express personal and social competences. Indeed, the more one perceives an emotional overload, with high anxiety, stress, and depression, and the less one can leverage on the skills of mindful acting and resilience, the more one uses the internet as a strategy to escape from a threatening reality. It is particularly intriguing that escape was the only dimension of addiction to correlate with state anxiety and with resilience. This could suggest that escape is a first level dimension of the addiction on what risk factors impact, before dissociation and dependence, and it could represent a direct reaction to an increased state of anxiety, especially when resilience is low (Blasi et al., 2019; Chen et al., 2019). If it represents the first level dimension of addiction, it could be suggested the relevance of programs to intervene initially on escape to prevent addiction.

## Limitations, future research, and interventions

What we have just illustrated was a pilot study that had just exploratory aims with several limitations. First, the sample size was small to allow a generalization of the results to a larger population of young adults. Second, the measure of socialization behaviour included six items ideated ad hoc but with low reliability, while the ad hoc measure of gambling included just two items. Therefore, when we interpret the results including these measures, we cannot exclude that they are due to inadequate measurement. Third, there was not a correction for multiple comparisons that could partially explain the result of several significant correlations.

Future research might consider experimental (or quasi-experimental) designs to demonstrate causal links between protective factors and addiction and analyse processes of causality: for instance, how mindfulness and resilience programs might directly reduce addiction, and through the mediation of emotional distress (anxiety, depression) and social engagement (socialization). Given those results, we can provide some indications for programs that contrast IA, especially in times of collective trauma and threats such as pandemic.

First, we saw that what contrasts depression, anxiety, and perception of overloading stress, also contrasts addiction. In neurofunctional terms, the pandemic, as a collective threat, might activate the physiological response to stress, and dorsal vagal complex that inhibits social engagement and produce an unbalance of sympathetic system (Porges, 2007). Contemplative and mindfulness practices have been shown to activate, instead, the ventral vagal complex, that is involved in social engagement, and disactivates sympathetic nervous system (Poli et al., 2021). Consequently, programs based on mindfulness, that promote stress reduction, the release of the psycho-physical overload, and emotional regulation (i.e., emotional expression, cognitive reappraisal) might both reduce state anxiety and depression, and at the same time the need to escape in internet misuse. The result of a correlation between internet misuse and acting with awareness, points out the relevance of programs that should focus on

dismissing the automatic pilot and paying attention to what is in the present moment, since this mindfulness facet is the one that was revealed as especially lacking in internet addicts. The result of the involvement of the addiction dimension of escape also pays the way to plan training interventions on coping strategies alternative to internet misuse to escape from social and environmental stressors.

Especially in the stressful condition of isolation, training programs should not exclude the role of exposition to one's beloved (Beilin et al., 2005; Heinrichs et al., 2003), socialization, body contact, self-massage practices (Moschetti & Tortorella, 2007), and the promotion of feeling of trust (Blass et al., 1994) since all of them were shown to increase stress-moderating hormones, such as oxytocin (Dębiec, 2005). Besides, programs should promote both mindfulness and resilience, the attention to the present moment (that is similar to the resilient equanimity: "going with the flow and accepting what is there"), and the feeling of being a part of a bigger picture, or global self-awareness (Ghiroldi et al., 2020), that is similar to the resilient meaningfulness (or a belief that life has meaning) (Wagnild, 2009) and also recalls the eudaimonic dimension of purpose in life, that was associated to mindfulness programs such as Gaia in adolescents (Scafuto et al., in press).

## References

- Akin, A., & Iskender, M. (2011). Internet addiction and depression, anxiety and stress. *International online journal of educational sciences*, 3(1), 138-148.
- Al-Gamal, E., Alzayyat, A., & Ahmad, M. M. (2016). Prevalence of Internet Addiction and Its Association With Psychological Distress and Coping Strategies Among University Students. *Perspectives in psychiatric care*, 52(1), 49-61.
- Amel, E. L., Manning, C. M., & Scott, B. A. (2009). Mindfulness and sustainable behavior: Pondering attention and awareness as means for increasing green behavior. *Ecopsychology*, 1(1), 14-25, doi:10.1089/eco.2008.0005.
- American Psychiatric Association, DSM-5 Task Force. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5™* (5th ed.). American Psychiatric Publishing, Inc. <https://doi.org/10.1176/appi.books.9780890425596>
- Arslan, G. (2017). Psychological maltreatment, forgiveness, mindfulness, and internet addiction among young adults: A study of mediation effect. *Computers in Human Behavior*, 72, 57-66.
- Arslan, G., & Coşkun, M. (2022). Social exclusion, self-forgiveness, mindfulness, and internet addiction in college students: A moderated mediation approach. *International Journal of Mental Health and Addiction*, 20(4), 2165-2179.
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13, 27-45.
- Bagheri Sheykhgafshe, F., Abolghasemi, A., & Kafi Masouleh, S.M. (2021). Predicting Resilience based on Dark Triad personality and psychological wellbeing in athletes students. *J Arak Univ Med Sci*, 24(2), 230-45.
- Barnová, S., & Tamášová, V. (2018). Risk and protective factors in the life of youth in relation to resilience. *Psychology and pathopsychology of child*, 52(1), 50-59.
- Beard, K. W. (2005). Internet addiction: a review of current assessment techniques and potential assessment questions. *CyberPsychology & Behavior*, 8(1), 7-14.
- Beck, A. T, Steer, R.A, Brown, G.K. (1996). "BDI-II: Beck Depression Inventory Manual. 2nd ed. San Antonio", TX: Psychological Corporation.
- Beilin, Y., Bodian, C. A., Weiser, J., Hossain, S., Arnold, I., Feierman, D. E., ... & Holzman, I. (2005). Effect of labor epidural analgesia with and without fentanyl on infant breast-feeding: a prospective, randomized, double-blind study. *The Journal of the American Society of Anesthesiologists*, 103(6), 1211-1217.
- Berardi, A., Ruotolo, I., Sellitto, G., Panuccio, F., Polimeni, A., Valente, D., Tofani, D., & Galeoto, G. (2021). Criterion Validity and Reliability of Perceived Stress Scale (PSS) in a Student Population during COVID-19 Pandemic. *International Association for Development of the Information Society*, 71-78.
- Blasi, M. D., Giardina, A., Giordano, C., Coco, G. L., Tosto, C., Billieux, J., & Schimmenti, A. (2019). Problematic video game use as an emotional coping strategy: Evidence from a sample of MMORPG gamers. *Journal of behavioral addictions*, 8(1), 25-34.
- Blass, E. M., Ciaramitaro, V., & Barr, R. G. (1994). A new look at some old mechanisms in human newborns: taste and tactile determinants of state, affect, and action. *Monographs of the Society for Research in Child Development*, i-101.
- Bortolla, R., Galli, M., Spada, G. E., & Maffei, C. (2022). Mindfulness effects on mind wandering and autonomic balance. *Applied Psychophysiology and Biofeedback*, 47(1), 53-64.
- Boursier, V., Gioia, F., & Griffiths, M. D. (2020). Objectified body consciousness, body image control in photos, and problematic social networking: The role of appearance control beliefs. *Frontiers in Psychology*, 11, 147.
- Boxall, H., Morgan, A., & Brown, R. (2020). The prevalence of domestic violence among women during the COVID-19 pandemic. *Australasian Policing*, 12(3), 38-46.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84, 822-848. doi:10.1037/0022-3514.84.4.822.
- Callegari, C., Bertù, L., Lucano, M., Ielmini, M., Braggio, E., & Vender, S. (2016). Reliability and validity of the Italian version of the 14-item Resilience Scale. *Psychology Research and Behavior Management*, 9, 277-284. <https://doi.org/10.2147/prbm.s115657>
- Caplan, S. E. (2003). Preference for online social interaction. A theory of problematic Internet use and psychosocial well-being. *Communication Research*, 30(6), 625-648, <https://doi.org/10.1177/0093650203257842>
- Caplan, S. E. (2010). Theory and measurement of generalized problematic Internet use: A two-step approach. *Computers in human behavior*, 26(5), 1089-1097.
- Caplan, S. E., & High, A. C. (2007). Online social interaction, psychosocial well-being, and problematic Internet use. *Internet addiction: A handbook and guide to evaluation and treatment*, 35-53.
- Carmassi, C., Stratta, P., Massimetti, G., Bertelloni, C. A., Conversano, C., Cremone, I. M., ... & Dell'Osso, L. (2014). New DSM-5 maladaptive symptoms in PTSD: gender differences and correlations with mood spectrum symptoms in a sample of high school students following survival of an earthquake. *Annals of general psychiatry*, 13(1), 1-9.
- Ceyhan, A. A. (2011). University Students' Problematic Internet Use and Communication Skills According to the Internet Use Purposes. *Educational Sciences: Theory and Practice*, 11(1), 69-77.
- Ceyhan, A. A., & Ceyhan, E. (2008). Loneliness, depression, and computer self-efficacy as predictors of problematic internet use. *CyberPsychology & Behavior*, 11(6), 699-701.
- Chen, L. S., Bao, J. W., & Huang, D. (2019). Relationship between meaning in life, pathological internet use and time management in college student. *China J health psych*, 27, 919-23.
- Chou, C., Condrón, L., & Belland, J. C. (2005). A review of the research on Internet addiction. *Educational psychology review*, 17(4), 363-388.



- Ciacchini, R., Orrù, G., Cucurnia, E., Sabbatini, S., Scafuto, F., Lazzarelli, A., Miccoli, M., Gemignani, A., & Conversano, C. (2023). Social Media in Adolescents: A Retrospective Correlational Study on Addiction. *Children*, *10*(2), 278. <https://doi.org/10.3390/children10020278>
- Codagnone, C., Bogliacino, F., Gómez, C., Charris, R., Montealegre, F., Liva, G., ... & Veltri, G. A. (2020). Assessing concerns for the economic consequence of the COVID-19 response and mental health problems associated with economic vulnerability and negative economic shock in Italy, Spain, and the United Kingdom. *Plos one*, *15*(10), e0240876.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 385–396. DOI: 10.2307/2136404.
- Conversano, C. (2021). The psychodynamic approach during COVID-19 emotional crisis. *Frontiers in Psychology*, *12*, 670196.
- Conversano, C., Di Giuseppe, M., Miccoli, M., Ciacchini, R., Gemignani, A., & Orrù, G. (2020a). Mindfulness, age and gender as protective factors against psychological distress during COVID-19 pandemic. *Frontiers in psychology*, *11*, 1900.
- Conversano, C., Di Giuseppe, M., Miccoli, M., Ciacchini, R., Di Silvestre, A., Sterzo, R. L., ... & Orrù, G. (2020b). Retrospective analyses of psychological distress and defense style among cancer patients. *Clinical Neuropsychiatry*, *17*(4), 217.
- Cui, X., & Chi, X. (2021). The relationship between social support and internet addiction among Chinese adolescents during the COVID-19 pandemic: A multiple mediation model of resilience and post-traumatic stress disorder symptoms. *Psychology Research and Behavior Management*, 1665-1674.
- Davis, R. A. (2001). A cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior*, *17*(2) pp. 187-195, 10.1016/S0747-5632(00)00041-8
- Debiec, J. (2005). Peptidi dell'amore e della paura: vasopressina e ossitocina modulano l'integrazione delle informazioni nell'amigdala. *Biosaggi*, *27*(9), 869-873.
- Dekeyser, M., Raes, F., Leijssen, M., Leysen, S., & Dewulf, D. (2008). Mindfulness skills and interpersonal behaviour. *Personality and individual differences*, *44*(5), 1235-1245.
- Dell'Osso, L., Bazzichi, L., Baroni, S., Falaschi, V., Conversano, C., Carmassi, C., & Marazziti, D. (2015). The inflammatory hypothesis of mood spectrum broadened to fibromyalgia and chronic fatigue syndrome. *Clinical and experimental rheumatology*, *33*(88), 109-116.
- Dell'Osso, L., Carmassi, C., Rucci, P., Ciapparelli, A., Conversano, C., & Marazziti, D. (2011). Complicated grief and suicidality: the impact of subthreshold mood symptoms. *CNS spectrums*, *16*(1), 1-6.
- Del Miglio, C., Gamba, A., & Cantelmi, T. (2001). Costruzione e validazione preliminare di uno strumento UADI per la rilevazione delle variabili psicologiche e psicopatologiche correlate all'uso di Internet. *Giornale Italiano di psicopatologia*, *7*(3), 293-306.
- Didonna, F., & Bosio, V. (2012). Misurare le abilità di mindfulness: Uno studio di validazione della versione Italiana del Five Facet Mindfulness Questionnaire. *Psicoterapia Cognitiva e Comportamentale*, *18*(3), 261–284.
- Di Giuseppe, M., Gemignani, A., & Conversano, C. (2020). Psychological resources against the traumatic experience of COVID-19. *Clinical Neuropsychiatry*, *17*(2), 85.
- Di Giuseppe, M., Nepa, G., Prout, T. A., Albertini, F., Marcelli, S., Orrù, G., & Conversano, C. (2021). Stress, burnout, and resilience among healthcare workers during the COVID-19 emergency: the role of defense mechanisms. *International journal of environmental research and public health*, *18*(10), 5258.
- Di Giuseppe, M., Orrù, G., Gemignani, A., Ciacchini, R., Miniati, M., & Conversano, C. (2022). Mindfulness and Defense mechanisms as explicit and implicit emotion regulation strategies against psychological distress during massive catastrophic events. *International Journal of Environmental Research and Public Health*, *19*(19), 12690.
- Dong, H., Yang, F., Lu, X., & Hao, W. (2020). Internet addiction and related psychological factors among children and adolescents in China during the coronavirus disease 2019 (COVID-19) epidemic. *Frontiers in psychiatry*, *11*, 751.
- Dubey, A. D., & Tripathi, S. (2020). Analysing the sentiments towards work-from-home experience during covid-19 pandemic. *Journal of Innovation Management*, *8*(1), 13-19.
- Ferraro, G., Caci, B., D'amico, A., & Blasi, M. D. (2006). Internet addiction disorder: an Italian study. *CyberPsychology & Behavior*, *10*(2), 170-175.
- Follette, V., Palm, K. M., & Pearson, A. N. (2006). Mindfulness and trauma: Implications for treatment. *Journal of rational-emotive and cognitive-behavior therapy*, *24*(1), 45-61.
- Ghiroldi, S., Scafuto, F., Montecucco, N. F., Presaghi, F., & Iani, L. (2020). Effectiveness of a school-based mindfulness intervention on children's internalizing and externalizing problems: The Gaia Project. *Mindfulness*, *11*, 2589–2603. <https://doi.org/10.1007/s12671-020-01473-9>
- Giovannini, C., Giromini, L., Bonalume, L., Tagini, A., Lang, M., & Amadei, G. (2014). The Italian five facet mindfulness questionnaire: A contribution to its validity and reliability. *Journal of Psychopathology and Behavioral Assessment*, *36*(3), 415-423
- Gong, Z., Wang, L., & Wang, H. (2021). Perceived stress and internet addiction among Chinese college students: mediating effect of procrastination and moderating effect of flow. *Frontiers in Psychology*, *12*, 632461.
- González-Sanguino, C., Ausín, B., Castellanos, M. Á., Saiz, J., López-Gómez, A., Ugidos, C., & Muñoz, M. (2020). Mental health consequences during the initial stage of the 2020 Coronavirus pandemic (COVID-19) in Spain. *Brain, behavior, and immunity*, *87*, 172-176.
- Guillot, C. R., Bello, M. S., Tsai, J. Y., Huh, J., Leventhal, A. M., & Sussman, S. (2016). Longitudinal associations between anhedonia and internet-related addictive behaviors in emerging adults. *Computers in Human Behavior*, *62*, 475-479.
- Günay, O., Öztürk, A., Arslantas, E., & Sevinc, N. (2018). Internet addiction and depression levels in Erciyes University students. *Journal of Psychiatry and Neurological Sciences*, *31*(1).
- Hasan, A. A. H. (2019). Prevalence of internet addiction, its association with psychological distress, coping strategies among undergraduate students. *Nurse Education Today*, *81*, 78-82.
- Hawkey, L. C., & Capitanio, J. P. (2015). Perceived social isolation, evolutionary fitness and health outcomes: a lifespan approach. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *370*(1669), 20140114.
- Heinrichs, M., Baumgartner, T., Kirschbaum, C., & Ehlert, U. (2003). Social support and oxytocin interact to suppress cortisol and subjective responses to psychosocial stress. *Biological psychiatry*, *54*(12), 1389-1398.
- Hossain, M. T., Ahammed, B., Chanda, S. K., Jahan, N., Ela, M. Z., & Islam, M. N. (2020). Social and electronic media exposure and generalized anxiety disorder among people during COVID-19 outbreak in Bangladesh: a preliminary observation. *Plos one*, *15*(9), e0238974.
- Hu, J., Feng, B., Zhu, Y., Wang, W., Xie, J., & Zheng, X. (2017). Gender differences in PTSD: susceptibility and resilience. *Gender differences in different contexts*, 21-42.
- Iasevoli, M., Giantin, V., Voci, A., Valentini, E., Zurlo, A., Maggi, S., ... & Manzato, E. (2012). Discussing end-of-life care issues with terminally ill patients and their relatives: comparisons among physicians, nurses and psychologists.

- Aging clinical and experimental research*, 24(3), 35-42.
- Jokic-Begic, N., Lauri Korajlija, A., & Mikac, U. (2020). Cyberchondria in the age of COVID-19. *PLoS one*, 15(12), e0243704. <https://doi.org/10.1371/journal.pone.0243704>
- Joorabchi, T. N., Afshariyan, M. S., & Armat, R. (2022). Internet Addiction Mediates the Relationships among Internet Skill and Gratification of Using Internet with Social Isolation among Malaysian Youths: The Moderating Roles of Gender and Race. *International Journal of Education and Development using Information and Communication Technology*, 18(2), 111-126.
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York: Hyperion.
- Kalisch, R., Baker, D. G., Basten, U., Boks, M. P., Bonanno, G. A., Brummelman, E., ... & Kleim, B. (2017). The resilience framework as a strategy to combat stress-related disorders. *Nature human behaviour*, 1(11), 784-790.
- Kandell, J. J. (1998). Internet addiction on campus: The vulnerability of college students. *Cyberpsychology & behavior*, 1(1), 11-17.
- Keng, S. L., Smoski, M. J., & Robins, C. J. (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review*, 31(6), 1041-1056. <https://doi.org/10.1016/j.cpr.2011.04.006>
- Khubchandani, J., Sharma, S., & Price, J. H. (2021). COVID-19 pandemic and the burden of internet addiction in the United States. *Psychiatry International*, 2(4), 402-409.
- Killgore, W. D., Taylor, E. C., Cloonan, S. A., & Dailey, N. S. (2020). Psychological resilience during the COVID-19 lockdown. *Psychiatry research*, 291, 113216.
- Kim, J., LaRose, R., & Peng, W. (2009). Loneliness as the cause and the effect of problematic Internet use: The relationship between Internet use and psychological well-being. *Cyberpsychology & behavior*, 12(4), 451-455.
- Kim, K., Milne, G. R., & Bahl, S. (2018). Smart phone addiction and mindfulness: an intergenerational comparison. *International Journal of Pharmaceutical and Healthcare Marketing*.
- Koo, H. J., & Kwon, J. H. (2014). Risk and protective factors of internet addiction: A meta-analysis of empirical studies in Korea. *Yonsei medical journal*, 55(6), 1691-1711.
- Kuss, D., D Griffiths, M., Karila, L., & Billieux, J. (2014). Internet addiction: A systematic review of epidemiological research for the last decade. *Current pharmaceutical design*, 20(25), 4026-4052.
- Li, D. P., Zhang, W., Li, X. A., Zhen, S. J., & Wang, Y. H. (2010). Stressful life events and problematic Internet use by adolescent females and males: A mediated moderation model. *Computers in Human Behavior*, 26, 1199-1207.
- Li, W., Garland, E. L., & Howard, M. O. (2018). Therapeutic mechanisms of Mindfulness-Oriented Recovery Enhancement for internet gaming disorder: Reducing craving and addictive behavior by targeting cognitive processes. *Journal of addictive diseases*, 37(1-2), 5-13. <https://doi.org/10.1080/10550887.2018.1442617>
- Li, Z. S., & Hasson, F. (2020). Resilience, stress, and psychological well-being in nursing students: A systematic review. *Nurse education today*, 90, 104440. *Advance online publication*. <https://doi.org/10.1016/j.nedt.2020.104440>
- Liu, T., & Potenza, M. (2007). Problematic Internet Use: Clinical Implications. *CNS Spectrums*, 12(6), 453-466. doi:10.1017/S1092852900015339
- Lozano-Blasco, R., Robres, A. Q., & Sánchez, A. S. (2022). Internet addiction in young adults: A meta-analysis and systematic review. *Computers in Human Behavior*, 107201.
- Machimbarrena, J. M., Calvete, E., Fernández-González, L., Álvarez-Bardón, A., Álvarez-Fernández, L., & González-Cabrera, J. (2018). Internet risks: An overview of victimization in cyberbullying, cyber dating abuse, sexting, online grooming and problematic internet use. *International journal of environmental research and public health*, 15(11), 2471.
- Magson, N. R., Freeman, J. Y., Rapee, R. M., Richardson, C. E., Oar, E. L., & Fardouly, J. (2021). Risk and protective factors for prospective changes in adolescent mental health during the COVID-19 pandemic. *Journal of youth and adolescence*, 50(1), 44-57.
- Mak, K. K., Jeong, J., Lee, H. K., & Lee, K. (2018). Mediating Effect of Internet Addiction on the Association between Resilience and Depression among Korean University Students: A Structural Equation Modeling Approach. *Psychiatry investigation*, 15(10), 962-969. <https://doi.org/10.30773/pi.2018.08.072>
- Marazziti, D., Pozza, A., Di Giuseppe, M., & Conversano, C. (2020). The psychosocial impact of COVID-19 pandemic in Italy: A lesson for mental health prevention in the first severely hit European country. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(5), 531.
- Marlatt, G. A., & Kristeller, J. L. (1999). Mindfulness and meditation. In W. R. Miller (Ed.), *Integrating spirituality into treatment: Resources for practitioners* (pp. 67-84). American Psychological Association. <https://doi.org/10.1037/10327-004>
- Masaeli, N., & Farhadi, H. (2021). Prevalence of Internet-based addictive behaviors during COVID-19 pandemic: A systematic review. *Journal of addictive diseases*, 39(4), 468-488.
- Miniati, M., Marzetti, F., Palagini, L., Marazziti, D., Orrù, G., Conversano, C., & Gemignani, A. (2021). Eating disorders spectrum during the COVID pandemic: a systematic review. *Frontiers in Psychology*, 4161.
- Mitchell, P. (2000). Internet addiction: genuine diagnosis or not? *The Lancet*, 355(9204), 632.
- Monacis, L., Sinatra, M., Griffiths, M. D., & de Palo, V. (2018). Assessment of the Italian version of the Internet Disorder Scale (IDS-15). *International Journal of Mental Health and Addiction*, 16(3), 680-691.
- Mondo, M., Sechi, C., & Cabras, C. (2021). Psychometric evaluation of three versions of the Italian Perceived Stress Scale. *Current Psychology*, 40, 1884-1892. <https://doi.org/10.1007/s12144-019-0132>
- Montano, A., & Flebus, G. B. (2006). Presentazione del Beck Depression Inventory-seconda edizione (BDI-II): conferma della struttura bifattoriale in un campione di popolazione italiana. *Psicoterapia cognitiva e comportamentale*, 12(1), 67.
- Moschetti, A., & Tortorella, M. L. (2007). Ossitocina e attaccamento. *Quaderni Acp*, 14(6), 254-260.
- Mrayyan, M. T., Al-Rawashdeh, S., Khaiteh, A. A., & Rababa, M. (2022). Differences in Cyberchondria, Internet Addiction, Anxiety Sensitivity, Health Anxiety, and Coronavirus Anxiety Among Students: A Web-Based Comparative Survey. *Electronic Journal of General Medicine*, 19(3).
- Muratori, P., & Ciacchini, R. (2020). Children and the COVID-19 transition: psychological reflections and suggestions on adapting to the emergency. *Clinical Neuropsychiatry*, 17(2), 131.
- Orrù, G., Sampietro, S., Catanzaro, S., Girardi, A., Najjar, M., Giantin, V., ... & Coin, A. (2009). Serial position effect in a free recall task: differences between probable dementia of Alzheimer type (PDAT), vascular (VaD) and mixed etiology dementia (MED). *Archives of Gerontology and Geriatrics*, 49, 207-210.
- Orrù, G., Conversano, C., Malloggi, E., Francesconi, F., Ciacchini, R., & Gemignani, A. (2020). Neurological complications of COVID-19 and possible neuroinvasion pathways: a systematic review. *International journal of environmental research and public health*, 17(18), 6688.
- Orrù, G., Marzetti, F., Conversano, C., Vagheggini, G., Miccoli, M., Ciacchini, R., ... & Gemignani, A. (2021a). Secondary traumatic stress and burnout in healthcare workers during

- COVID-19 outbreak. *International journal of environmental research and public health*, 18(1), 337.
- Orrù, G., Bertelloni, D., Diolaiuti, F., Conversano, C., Ciacchini, R., & Gemignani, A. (2021b). A psychometric examination of the coronavirus anxiety scale and the Fear of Coronavirus Disease 2019 Scale in the Italian population. *Frontiers in Psychology*, 12, 669384.
- Ozturk, F. O., & Ayaz-Alkaya, S. (2021). Internet addiction and psychosocial problems among adolescents during the COVID-19 pandemic: A cross-sectional study. *Archives of psychiatric nursing*, 35(6), 595-601.
- Patias, N. D., Von Hohendorff, J., Cozzer, A. J., Flores, P. A., & Scorsolini-Comin, F. (2021). Mental health and coping strategies in undergraduate students during COVID-19 pandemic. *Trends in psychology*, 29, 414-433.
- Peters, J. R., Erisman, S. M., Upton, B. T., Baer, R. A., & Roemer, L. (2011). A preliminary investigation of the relationships between dispositional mindfulness and impulsivity. *Mindfulness*, 2, 228-235.
- Piccinni, A., Origlia, N., Veltri, A., Vizzaccaro, C., Marazziti, D., Catena-Dell'Osso, M., ... & Dell'Osso, L. (2012). Plasma  $\beta$ -amyloid peptides levels: a pilot study in bipolar depressed patients. *Journal of affective disorders*, 138(1-2), 160-164.
- Poli, A., Gemignani, A., Soldani, F., & Miccoli, M. (2021). A systematic review of a polyvagal perspective on embodied contemplative practices as promoters of cardiorespiratory coupling and traumatic stress recovery for PTSD and OCD: research methodologies and state of the art. *International Journal of environmental research and public health*, 18(22), 11778.
- Porges, S. W. (2007). The polyvagal perspective. *Biological psychology*, 74(2), 116-143.
- Primack, B. A., Shensa, A., Sidani, J. E., Whaitte, E. O., Yi Lin, L., Rosen, D., ... & Miller, E. (2017). Social media use and perceived social isolation among young adults in the US. *American journal of preventive medicine*, 53(1), 1-8.
- Pulido Rull, M. A., Serrano Sánchez, M. L., Valdés Cano, E., Chávez Méndez, M. T., Hidalgo Montiel, P., & Vera García, F. (2011). Estrés académico en estudiantes universitarios I. *Psicol. Salud*, 21, 31-37.
- Putri, A., Setiawati, Y., Shieh, Y. T., & Lin, S. H. (2022). High-Risk Internet Addiction in Adolescents during Pandemic COVID-19 and Parent's Role. *Journal Berkala Epidemiology*, 10(1), 11-20.
- Putwain, D. (2007). Researching academic stress and anxiety in students: some methodological considerations. *Br. Educ. Res. J.*, 33, 207-219. doi: 10.1080/01411920701208258
- Qi, H., Liu, R., Chen, X., Yuan, X. F., Li, Y. Q., Huang, H. H., ... & Wang, G. (2020). Prevalence of anxiety and associated factors for Chinese adolescents during the COVID-19 outbreak. *Psychiatry and clinical neurosciences*, 74(10), 555.
- Riley, B. (2014). Experiential avoidance mediates the association between thought suppression and mindfulness with problem gambling. *Journal of Gambling Studies*, 30(1), 163-171. <https://doi.org/10.1007/s10899-012-9342-9>.
- Robertson, T. W., Yan, Z., & Rapoza, K. A. (2018). Is resilience a protective factor on internet addiction? *Computer in Human Behavior*, 78, 255-260. doi:10.1016/j.chb.2017.09.027
- Rohilla, J., Tak, P., Jhanwar, S., Hasan, S., Gaykwad, R., Yadav, R., & Kumar, P. (2020). Health anxiety among medical students: A comparison between preclinical and clinical years of training. *Journal of Education and Health Promotion*, 9.
- Royuela-Colomer, E., Fernández-González, L., & Orue, I. (2021). Longitudinal associations between internalizing symptoms, dispositional mindfulness, rumination and impulsivity in adolescents. *Journal of youth and adolescence*, 50, 2067-2078.
- Sartori, G., Zangrossi, A., Orrù, G., & Monaro, M. (2017). Detection of malingering in psychic damage ascertainment. P5 Medicine and Justice: Innovation, Unitariness and Evidence, 330-341.
- Scafuto, F., & La Barbera, F. (2016). Protest Against Waste Contamination in the 'Land of Fires': Psychological Antecedents for Activists and Non-activists. *Journal of Community and Applied Social Psychology*, 26(6), 481-495.
- Scafuto, F. (2019). Climate risk for the self and community: The role of Nature Relatedness, Personal Control and Mindfulness. *Rivista di studi in sostenibilità*, 89-108.
- Scafuto, F. (2021). Individual and social-psychological factors to explain climate change efficacy: The role of mindfulness, sense of global community, and egalitarianism. *Journal of Community Psychology*, 49(6), 2003-2022.
- Scafuto, F., Ghiroldi, S., Montecucco, N. F., Presaghi, F., & Iani, L. (2022). The Mindfulness-based Gaia program reduces internalizing problems in high-school adolescents: A cluster randomized controlled trial. *Mindfulness*, 13(7), 1804-1815.
- Scafuto, F., Ghiroldi, S., Montecucco, N. F., Presaghi, F., Matteo Quinto, R., De Vincenzo, F., & Iani, L. (in press). Promoting well-being in early adolescents through mindfulness: A cluster randomized controlled trial. Submitted to *Journal of Adolescence*.
- Schachter, J., Ajayi, A. A., & Nguyen, P. L. (2022). The moderating and mediating roles of mindfulness and rumination on COVID-19 stress and depression: A longitudinal study of young adults. *Journal of Counseling Psychology*.
- Schimmenti, A., & Caretti, V. (2010). Psychic retreats or psychic pits?: Unbearable states of mind and technological addiction. *Psychoanalytic Psychology*, 27(2), 115.
- Schimmenti, A., & Caretti, V. (2017). Video-terminal dissociative trance: toward a psychodynamic understanding of problematic internet use. *Clinical Neuropsychiatry*, 14(1).
- Schutte, N. S., & Del Pozo De Bolger, A. (2020). Greater mindfulness is linked to less procrastination. *International Journal of Applied Positive Psychology*, 5, 1-12.
- Servidio, R., Bartolo, M. G., Palermiti, A. L., & Costabile, A. (2021). Fear of COVID-19, depression, anxiety, and their association with Internet addiction disorder in a sample of Italian students. *Journal of Affective Disorders Reports*, 4, 100097.
- Shadzi, M. R., Salehi, A., Vardanjani, H.M. (2020). Problematic internet use, mental health, and sleep quality among medical students: a path-analytic model. *Indian J Psychol Med*, 42(2), 128-35. doi:10.4103/IJPSYM.IJPSYM 238 19.
- Shapira, N. A., Goldsmith, T. D., Keck, P. E., Khosla, U. M., & McElroy, S. L. (2000). Psychiatric features of individuals with problematic internet use. *Journal of affective disorders*, 57(1-3), 267-272. [https://doi.org/10.1016/s0165-0327\(99\)00107-x](https://doi.org/10.1016/s0165-0327(99)00107-x)
- Shen, W., Hua, M., Wang, M., Yuan, Y., Shao, M., & Zhao, Y. (2021). Anhedonia mediates the link between problematic internet use and psychological well-being. *Current Psychology*, 1-8.
- Silvia, P. J., & Kwapil, T. R. (2011). Aberrant asociality: How individual differences in social anhedonia illuminate the need to belong. *Journal of Personality*, 79(6), 1315-1332.
- Şimşir, Z., Koç, H., Seki, T., & Griffiths, M. D. (2022). The relationship between fear of COVID-19 and mental health problems: A meta-analysis. *Death studies*, 46(3), 515-523.
- Siste, K., Hanafi, E., Sen, L. T., Christian, H., Siswidiani, L. P., Limawan, A. P., ... & Suwartono, C. (2020). The impact of physical distancing and associated factors towards internet addiction among adults in Indonesia during COVID-19 pandemic: a nationwide web-based study. *Frontiers in psychiatry*, 11, 580977.
- Song, X., Zhao, H., Lou, T., Wang, Y., & Zheng, M. (2021).

- Comparison of mindfulness with and without practice among women in custody. *Criminal Justice and Behavior*, 48(8), 1111-1126.
- Spielberger, C. D. (1989). S.T.A.I. State-Trait Anxiety Inventory. Inventario per l'ansia di stato e di tratto. Forma Y. Florence: Giunti Organizzazioni Speciali.
- Stavropoulos, V., Gomez, R., Steen, E., Beard, C., Liew, L., & Griffiths, M. D. (2017). The longitudinal association between anxiety and Internet addiction in adolescence: The moderating effect of classroom extraversion. *Journal of behavioral addictions*, 6(2), 237-247.
- Stevens, M. W., Dorstyn, D., Delfabbro, P. H., & King, D. L. (2021). Global prevalence of gaming disorder: A systematic review and meta-analysis. *Australian & New Zealand Journal of Psychiatry*, 55(6), 553-568.
- Tang, J., Yu, Y., Du, Y., Ma, Y., Zhang, D., & Wang, J. (2014). Prevalence of internet addiction and its association with stressful life events and psychological symptoms among adolescent internet users. *Addictive behaviors*, 39(3), 744-747.
- Tanhan, A. (2020). COVID-19 sürecinde online seslifoto (OSF) yöntemiyle biyopsikososyal manevi ve ekonomik meseleleri ve genel iyi oluş düzeyini ele almak: OSF'nin Türkçeye uyarlanması. [Utilizing online photovoice (OPV) methodology to address biopsychosocial spiritual economic issues and wellbeing during COVID-19: Adapting OPV to Turkish.]. *Turkish Studies*, 15(4), 1029-1086. <https://doi.org/10.7827/TurkishStudies.44451>.
- Taş, İ. (2019). Association between depression, anxiety, stress, social support, resilience and internet addiction: a structural equation modelling. *Malaysian Online Journal of Educational Technology (MOJET)*.
- Tateno, M., Teo, A. R., Ukai, W., Kanazawa, J., Katsuki, R., Kubo, H., & Kato, T. A. (2019). Internet addiction, smartphone addiction, and Hikikomori trait in Japanese young adult: social isolation and social network. *Frontiers in psychiatry*, 10, 455.
- Tokunaga, R. S., & Rains, S. A. (2010). An evaluation of two characterizations of the relationships between problematic Internet use, time spent using the Internet, and psychosocial problems. *Human Communication Research*, 36(4), 512-545.
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology*, 86, 320-333. <https://doi.org/10.1037/0022-3514.86.2.320>
- Veneziani, C. A., & Voci, A. (2014). The Italian adaptation of the mindful awareness attention scale and its relation with individual differences and quality of life indexes. *Mindfulness*, 6(2), 373-381
- Wagnild, G. (2009). A review of the Resilience Scale. *Journal of nursing measurement*, 17(2), 105-113.
- Wamsler, C., Brossmann, J., & Hendersson, H. (2018). Mindfulness in sustainability science, practice, and teaching. *Sustain Sci*, 13(1), 143-162, doi:10.1007/s11625-017-0428-2.
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International journal of environmental research and public health*, 17(5), 1729.
- Xu, J., & Yang, X. (2023). The influence of resilience on stress reaction of college students during COVID-19: the mediating role of coping style and positive adaptive response. *Current Psychology*, 1-12.
- Yan, W., Li, Y., & Sui, N. (2014). The relationship between recent stressful life events, personality traits, perceived family functioning and internet addiction among college students. *Stress and Health*, 30(1), 3-11.
- Yao, B., Han, W., Zeng, L., & Guo, X. (2013). Freshman year mental health symptoms and level of adaptation as predictors of Internet addiction: a retrospective nested case-control study of male Chinese college students. *Psychiatry research*, 210(2), 541-547. <https://doi.org/10.1016/j.psychres.2013.07.023>
- Yao, M. Z., & Zhong, Z. J. (2014). Loneliness, social contacts and Internet addiction: A cross-lagged panel study. *Computers in Human Behavior*, 30, 164-170.
- Young, K. (2015). The evolution of internet addiction disorder. *Internet addiction*, 3-17.
- Young, K. S., & Rogers, R.C. (1998). The Relationship Between Depression and Internet Addiction. *Cyberpsychology Behav. Soc. Netw.*, 1, 25-28.
- Yu, Q., Wang, X., Cao, Y., Lu, J., Gao, F., Fan, J., & Zhu, X. (2023). Social anhedonia affects the trajectory of internet addiction in the college students: A latent growth curve analysis. *Journal of Affective Disorders*, 326, 83-88.
- Zhang, Y., Lv, S., Li, C., Xiong, Y., Zhou, C., Li, X., & Ye, M. (2020). Smartphone use disorder and future time perspective of college students: The mediating role of depression and moderating role of mindfulness. *Child and Adolescent Psychiatry and Mental Health*, 14(1), 1-11. doi: 10.1186/s13034-020-0309-9

## Appendix: Socialization Scale

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**Socialization scale: Please answer to the following questions, considering the period of time that started with the end of the first lock-down (May 2020) for Covid-pandemic till now (June 2022)**

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1. In comparison with the pre-Covid, did the meetings with your friends have any change after the end of the lock-down? How much do you meet your friends?
  2. How much time do you spend with a “group” of friends?
  3. How often do you play sports with other people?
  4. How often do you practice your hobbies/recreative activities with other people?
  5. How often do you go out with your friends in the evenings?
  6. How often do you practice outdoor activities with your friends?
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