UNIVERSITY OF PADOVA

Department of General Psychology

Bachelor's Degree in Psychological Sciences

Final Dissertation

Exploring the Relationships Between Social Media Use and Alcohol/Tobacco

Consumption Among Italian Young Adults

Supervisor

Professor Giulia Buodo

Candidate: *Aurora Shehimi*
Student ID Number: *2041308*

Academic year 2023/2024

لروح الروح

Abstract

The aim of the study described in this dissertation is to examine the relationships between social media use (SMU) and the consumption of alcohol and tobacco among Italian young adults, while accounting for anxiety, depression, and obsessive-compulsive symptoms. Although numerous studies have demonstrated associations between these variables, the focus of the current study is to further understand how they collectively interact with one another. Data for this study were collected through an anonymous survey, and the final sample consisted of 209 Italian speaking young adults (aged 18-35 years) who currently reside in Italy.

We tested for correlations between the variables and the results demonstrated Anxiety to have the highest number of correlations (5), and symptoms of obsessive-compulsive disorder to have the lowest (1). We found positive correlations between SMU and anxiety and depression, and no significant correlations between SMU and alcohol/tobacco consumptions. However, alcohol drinking and cigarette smoking were significantly, and positively, associated together. Symptoms of obsessive-compulsive disorder were not associated with any of the variables, except solely with anxiety. E-cigarette smoking was only correlated with variable of traditional cigarette smoking. The studies that account for relations between the factors that were considered in this study are rather limited, and it is encouraged to direct future research around this area of study.

Keywords: Social Media, Alcohol Consumption, Tobacco Consumption, Italian Young Adults

Table of Contents

Chapter 1: Introduction

1.1 Social Media Use (SMU)

Social media (SM) have unequivocally increased in popularity over the past decade. We may recognize a few of the most widely used platforms such as Facebook, Instagram, X (previously Twitter), Reddit, Snapchat, and TikTok. The rise in SM utilization has facilitated the consumption of digital content and information, and communications and interactions among billions of users around the world. In Italy alone, 73.86% of the population were reported as users of social media in the year 2023, and predictions reveal that there may be an increase of 7.45% between 2024 and 2028 (Dixon, 2023). Although SMU has its benefits, including sharing thoughts, news, videos and photographs, and networking with others, it may lead to excessive utilization, or the uncontrollable urge to log on and use SM platforms, also defined as addiction (Citkowska-Kisielewska et al., 2019).

Research on Internet addiction was initiated by Young (1998), who identified it as an impulse-control disorder, according to the diagnostic criteria of impulse-control disorders in the Diagnostic and Statistical Manual of Mental Disorders, fourth edition. This type of condition is described as one where excessive Internet usage produces negative outcomes on an individual's life (Young & Abreu, 2004). Such outcomes may include disturbances in one's physical and mental health, as well as in personal relationships. Since SM platforms are being increasingly utilized by Internet users, we may consider that excessive and uncontrolled use of SM can be described as problematic use of SM. Scholars prefer to use the term 'problematic use' rather than 'addiction' in this context in order to "distinguish such maladaptive Internet uses from formal clinical conditions" (Caplan, 2010; Lee et al., 2017; Sun, & Zhang, 2021).

While it is widely recognized that problematic use of SM can have significant implications on one's mental health, it is still not recognized as a diagnosis according to the DSM-5-TR. This fact is quite alarming as we live in a surge of the digital age, and there exists a large body of research that conveys the influence that SM has on our daily lives. For example, It is important to acknowledge that some individuals "exhibit a compulsion to use social media" which may lead to a "possible set of pathological behaviors" (Quaglieri, 2022). For example, according to the literature, it is more likely to develop an anxiety disorder with the increased use of SM among emerging adults (Vannucci, 2017).

Moreover, it has been reported that Italian young adults enjoy spending time on SM platforms, specifically those that include image-related content, such as Instagram, which is one of the most used SM platforms today (Marengo et al., 2021). According to Vedova et al. (2022), this raises some concern about spreading "smartphone addictive behaviors," which have been strongly associated with self-reported psychological distress.

1.2 Social Media and Alcohol/Tobacco Consumption

We can look at the relationship between SM use and alcohol consumption in two ways, considering that SM provides information between online and offline alcohol consumption patterns, and that SM can influence such behaviors, referring to behavioral models such as Social Learning Theory by Bandura (1986) (Moreno & Whitehill, 2014). Based on this theory, patterns of behavior are acquired directly or indirectly with experience, or by observing others who perform such behaviors and learning from them.

In a study conducted by Beullens and Schepers (2013), it was found that around 72.23% of reactions to alcohol-related posts were referred to in "a positive context." As individuals are drawn to SM platforms that contain image-related content, increased time spent on these platforms can have influences on the day-to-day behaviors of individuals consuming this content. Another study also reported that college students' alcohol consumption habits may originate from excessive SMU, which displays positive attitudes towards alcohol. Hence, the disclosure of alcohol-related content influences alcohol exposure (Erevik et al., 2018). According to the Istituto Superiore di Sanità, almost one out of four Italians was a smoker in 2022, this accounts for around 24.2% of the Italian population. In addition to that, around 3.3% of the Italian population smoked heated tobacco products in 2022, of which 36.6% considered these products as less harmful than traditional cigarettes. A study that assessed smoking habits among an Italian sample during the COVID-19 lockdown reported that improvements in these habits were found in younger adults, whereas increased smoking was associated with mental distress, specifically leading to increased anxiety and depressive symptoms (Carreras et al., 2020).

In the context of SM influence on cigarette smoking, it has been reported that positive attitudes expressed on SM platforms, as well as advertising, has increased susceptibility and initiation to tobacco consumption (Shmueli et al., 2010). In cases of anti-smoking messages, it was shown that desire for retaliation among college students was prevalent, leading to an increase in smoking (Freeman et al., 2001). Thus, exposure to SM platforms that contain positive or negative topics around tobacco has led to an increase in smoking, whereas exposure to positive attitudes towards alcohol consumption on these platforms have also increased drinking habits. This continues to prove the influence that SM has on individuals' behaviors.

1.3 Social Media and Anxiety/Depression/Obsessive-Compulsive Behaviors

As aforementioned, the likelihood of developing an anxiety disorder is greater with increased use of SM (Vannucci, 2017). While there are multiple studies that argue otherwise, recent literature suggests that there is a strong positive correlation among the two factors. Some behaviors on SM can directly cause stress, such as receiving negative feedback, cyber-bullying, increased awareness of events that may be stressful, and internalized pressure to continuous updating of one's profile contents (Rose et al., 2015; Valkenburg et al., 2009). Furthermore, a systematic review by Seabrook et al. (2016) also indicated that different attitudes related to interactions on SM have implications on anxiety and depression. For example, supportive and positive interactions are linked with lower rates of anxiety and depression. It is no surprise that being in a constant state of maintaining a presence on SM may have stressful consequences to one's well-being. Depression among girls, and anxiety among boys seem to facilitate higher SM involvement (Oberst et al., 2016).

In 2022, around 6.2% of adults in Italy reported symptoms of depression, of which 62.4% asked for professional help (Gagliardi, 2024). A study investigating how SM addiction affects adults with depression has found a statistically significant relationship between the two variables, where the stronger correlation was related to specific platforms that were used the most (Aydin et al., 2021).

SM use reduces face-to-face connectivity and investments in meaningful relationships, encourages more screen time, and affects self-esteem through undesired comparisons (Thapa, 2018). This implies that increased screen time promotes online dependency and isolation, and impairs concentration and sleep, which are some of the main symptoms of depression. However, some studies showed that SM use has a positive impact on one's mental health, promoting online social

support. For example, the acts of posting and sending messages boost well-being, whereas browsing and reading messages seem to have the opposite effect due to social comparison and envy (Valkenburg, 2021). Thus, it is important to put in context the specific behaviors that individuals usually engage in when utilizing SM platforms, bringing an understanding to how different actions trigger different psychological responses.

A study conducted on Italian adults by Nicola et al. (2015) concluded that higher rates of behavioral addiction were associated with higher impulsivity and craving levels, including alcohol use disorders. This study also suggested that certain temperamental traits that are relevant to reward-seeking were found to be related to behavioral addictions. This approach gives insight to the root of addictive behaviors, which includes craving and impulsivity in decision making.

Some studies that aimed to investigate the associations between psychiatric symptoms and Internet addiction have found that this type of addiction is associated with obsessive-compulsive disorder/symptoms, where engaging in instant messenger use and chatting are considered to be linked with compulsive Internet use (Alavi et al., 2011; Eijnden et al., 2008).

Chapter 2: Experimental Study

2.1 Objectives

The current study aimed to explore the complex pattern of relationships between SM use, Alcohol and Tobacco consumption, and Anxiety, Depression, and Obsessive-Compulsive symptoms. As reported in Chapter 1, the relationship between SM use and the other above-mentioned variables has been investigated singly, but not together.

The main research question that this study aimed to answer was: What is the pattern of comorbidity between problematic SM use and other addictive behaviors?

2.2 Procedure and Participants

A research proposal that indicated the study's goals and plans was developed and then submitted to the Institutional Review Board (IRB; Comitato Etico della Ricerca Psicologica - Area 17 - Dipartimenti/Sezione di Psicologia - Università di Padova), who gave approval to initiate the data collection process (N. 459-a). The data for this study were collected through a survey questionnaire in Italian, which was built using Qualtrics.

The informed consent was presented at the start of the survey. Participants could choose to consent to voluntary participation, or to reject participating and close the page entirely. The informed consent also included emphasis on the freedom to withdraw from the study at any point, and on complete anonymity, i.e., information regarding personal identity of the participants were not part of the data collection.

The inclusion criteria were the following: to be an Italian speaker, to currently reside in Italy, to have at least one SM account, and to be 18-35 years old. Exclusion criteria included: the denial of informed consent, being younger than 18/older than 35

years, not currently residing in Italy, and not having at least one SM account. Demographic characteristics are found in *Figures 1,2, and 3*.

At the beginning of the survey, participants were asked whether or not they currently resided in Italy; if they clicked 'no,' the survey closed. If they answered 'yes,' a series of demographic (age, gender, region of residence in Italy, country of origin, religious affiliations) and socio-economic questions (years of education/schooling, marital status, employment status) followed. The survey was processed by asking whether or not the participant had at least one SM account; if they clicked on 'yes,' the scales listed in section 2.4 were presented. If the participant answered 'no,' then the survey ended.

A total of 252 Italian speaking participants accessed the survey, and after clearing up the database of unfinished questionnaires the sample consisted of 209 individuals (mean Age = 24.0 years; see *Figure 1*).
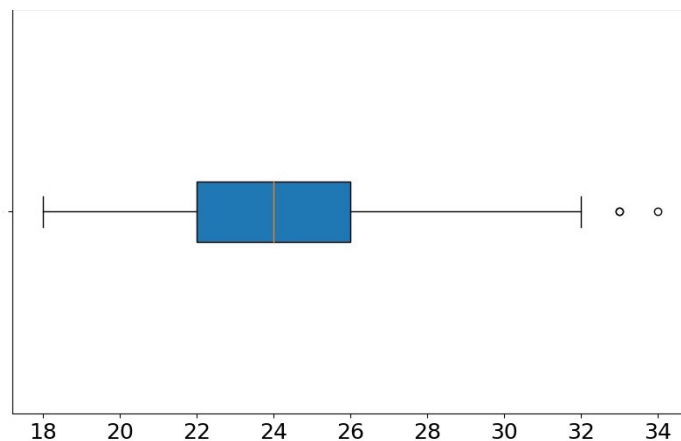

Figure 1, Age Distribution Among Participants

The gender identities of the participants were as follows: 134 participants identified as female, 66 identified as male, 5 identified as non-binary, 1 individual identified as trans-masc., 1 identified as genderqueer, 1 identified as gender fluid, and 1 preferred not to say (*see Figure 2*).
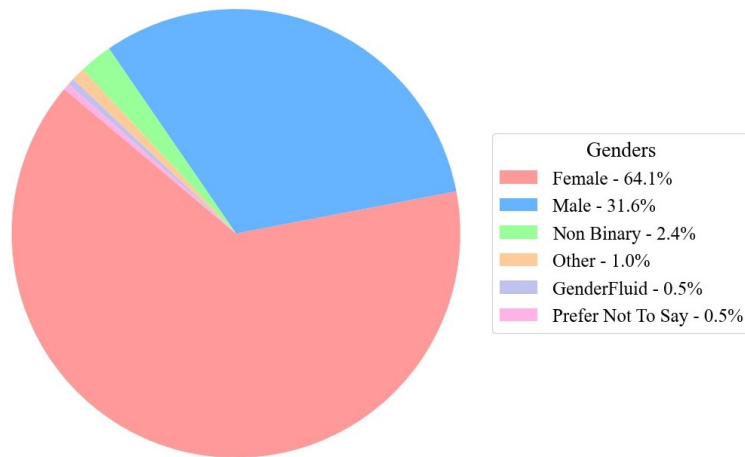
11

Figure 2, Gender Identity Distribution

The majority of the participants resided in northern Italy, specifically the Veneto region (*see Figure 3*). 186 were of Italian origin, while 23 were from other nationalities (Colombia, United States of America, Turkey, Pakistan, Bosnia, Bulgaria, Lebanon, France, Spain, Tunisia, Serbia, Syria, Venezuela, Kazakhstan, Ethiopia, and Portugal).
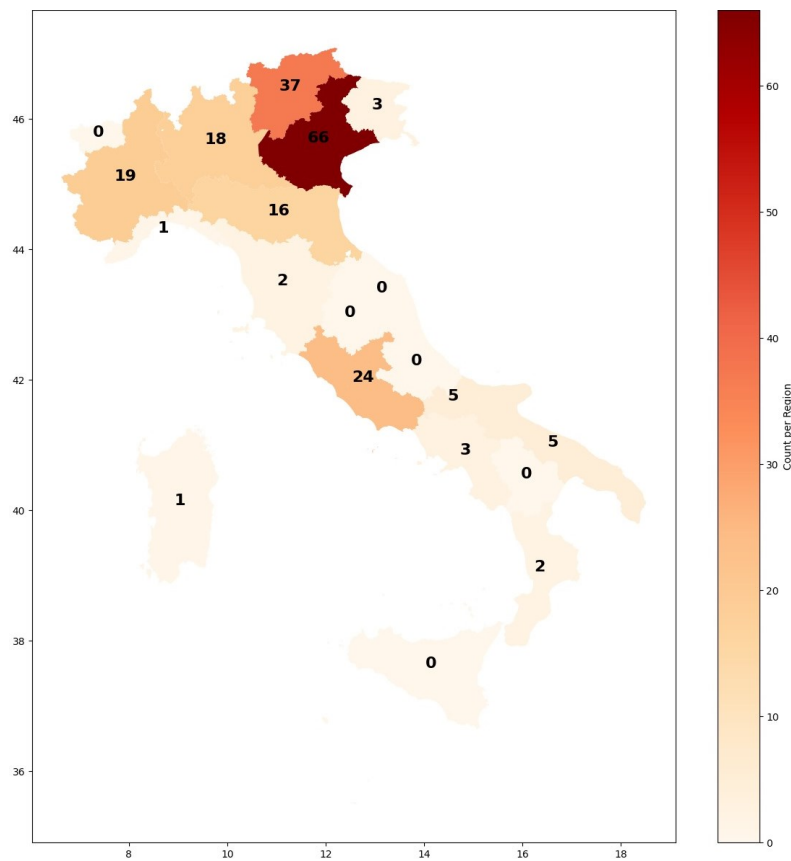

Figure 3, Distribution of Participants Among Italian Regions

2.3 Questionnaires

The validated Italian versions of the following scales were used in the survey. The questionnaires were categorized into specific groups, and a randomization of their order was inserted within each group and between the groups, such that each participant had a different order of the series of scales. However, Group 1 was prioritized to always be the first group to be answered since it referred to SM use. The groups were divided into the following:

Group 1: Social Media

- *Bergen Social Media Addiction Scale (BSMAS; Monacis et al., 2017), a psychometrically strong tool for assessing problematic use of social media. It contains six items asking about experiences in a 12-month time frame, targeting addiction elements such as mood modification, tolerance, and withdrawal. Individual items are answered on a 5-point Likert scale ranging from 1 (very rarely) to 5 (very often).*

- *DSM-5 criteria for Social Media, adapted from Internet Gaming Disorder to assess SM addiction according to DSM-5 criteria (American Psychiatric Association, 2013); the criteria pertaining feelings of psychological distress or discomfort due to SMU, and the time spent on SM and its effects on daily life are assessed through 9 items asking Yes/No questions on a 12-month time frame. It is referred to as Social Media Disorder Scale (SMDS) (Van den Eijnden et al., 2016).*

Group 2: Alcohol/Tobacco

- *The WHO Alcohol Use Disorders Identification Test (AUDIT; Struzzo et al., 2006); it consists of 10 items answered on a 5-point Likert scale where 1 is "never," and 5 is "4 or more times a week."*

- *DSM-5 criteria for Alcohol Use disorder; 11 Yes/No items addressing alcohol use disorder symptoms in the past 12 months, based on the DSM-5 criteria (American Psychiatric Association, 2013).*

- *Fagerstrom Test for nicotine dependence, retrieved from Istituto Superiore Di Sanità, translated from Heatherton et al. (1991); it is a 6-item questionnaire addressing nicotine addiction. Fagerstrom Test for nicotine dependence (for e-cigarettes), identical to the nicotine dependence version for traditional smoking, but adapted for e- cigarettes consumption.*

- *DSM-5 Criteria for Tobacco Use Disorder; 11 Yes/No items addressing alcohol use disorder symptoms in the past 12 months, based on the DSM-5 criteria (American Psychiatric Association, 2013).*

Group 3: Mood

- *Obsessive-compulsive Inventory-Revised (OCI-R; F et al., 2010, Foa et al., 2002), which measures dimensions that are found common in obsessive-compulsive disorder, such as obsessing, ordering, hoarding, and checking. It is an 18-item questionnaire, where each item is scored on a 5-point scale (0-4).*

- *Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) to assess symptoms of depression, scored on a 0-3 scale, where 0 is "not at all" and 3 is "nearly every day."*

- *Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006), a 7-item questionnaire that measures symptoms of anxiety based on a 2-week period; it is scored on a 4-point scale, 0 being "not at all," and 3 being "nearly every day."*

2.4 Data Analysis

The process of data analysis started by removing any unfinished submissions, and computing the scoring of each scale in line with their respective guidelines. This entire process was handled using the Pandas Library on Python. The following steps were adopted using R.

First, in order to attain a general understanding of the data, the Mean, Median, and Standard Deviation were calculated. Second, the Spearman's rho correlation coefficient was computed. Spearman's was preferred to Pearson's correlation since the scale data were not normally distributed. Third, Chi-Squared tests were run to check for statistically significant associations in order to back up correlations.

In the cases where an expected value of the contingency tables for the Chi-Square tests was low, we proceeded with a Fisher's Exact Test, which is used to assess the significance of our associations.

Lastly, we applied Benjamini-Hochberg correction to control the False Discovery Rate in our multiple tests.

2.5 Results

Based on the summary statistics (*see Table 4*), the mean for the BSMAS was 16.40 and the median was 16.0 out of a maximum score of 30, this is close to where the expected values would be. On the other hand, on the SMDS the mean was 6.84 and the median was 7.0 out of a maximum score of 9, these numbers are higher than expected. It is also worth noting that scoring over 6 out of 9 identifies problematic use. In fact, only 9 participants scored greater than or equal to 26 on the BSMAS, which identifies a severe problematic use. However, 168 participants scored greater than 6 on the DSM-5 criteria, implying a severity in their SM usage.

For the AUDIT, a median of 4.0 out of 40 was found, whereas a median of 11.0 out of 11 in the DSM-5 Alcohol Use Disorder criteria was found. The contradictory results between these two scales will be further discussed in the following section.

Moreover, moderate to high nicotine dependence rates are seen, which is somewhat consistent among the two scales assessing tobacco consumption. The average nicotine dependence scores recorded from the DSM scale was 8.30 out of a maximum score of 11, which is a relevantly high number, while the mean from the Fagerstrom Test was slightly above average being 5.82 out of 10. Moving forward, the average rates for e-cigarette consumption were also high with M=6.33 and median=7.0, which is also a notable result. These results clearly indicate that around half the population in this study are smokers.

Measure	Summary Statistics			
	Mean (N=210)	SD (N=210)	Median (N=210)	Max Score
Bergen Social Media Addiction Scale	16.40	4.91	16.0	30
Social Media Disorder Scale	6.84	1.86	7.0	9
Generalized Anxiety Disorder Scale	8.29	4.88	8.0	27
Obsessive-Compulsive Inventory	33.02	12.61	30.0	60
Patient Health Questionnaire	7.27	4.85	6.0	27
Alcohol Use Disorders Identification Test	4.77	4.54	4.0	40
DSM-5 Alcohol Use Disorder	8.34	4.15	11.0	11
DSM-5 Nicotine Dependence	8.30	2.35	9.0	11
Fagerstrom Test for Nicotine Dependence	5.82	1.61	6.5	10
Fagerstrom Test for Nicotine Dependence for E-Cigarettes	6.33	1.73	7.0	10

Table 4, Summary Statistics

Measure	Count of Participants	
	Below Threshold	Above Threshold
Generalized Anxiety Disorder Scale	135	74
Patient Health Questionnaire	205	4
Obsessive-Compulsive Inventory	17	192
Social Media Disorder Scale	41	168
Bergen Social Media Addiction Scale	200	9
Alcohol Use Disorders Identification Test	168	9
DSM-5 Alcohol Use Disorder	10	167
Fagerstrom Test for Nicotine Dependence	31	54
DSM-5 Nicotine Dependence	16	69
Fagerstrom Test for Nicotine Dependence for E-Cigarettes	11	20

Table 5, Severity Threshold Count Per Scale

Results from Spearman's rho correlation coefficient highlight significant positive correlations between BSMAS and GAD-7 (0.43), between BSMAS and OCI-R (0.36), between BSMAS and PHQ-9 (0.4), between BSMAS and AUDIT (0.05), and between BSMAS and Fagerstrom for cigarettes and e-cigarettes (0.06) and (0.1), respectively. The BSMAS scale positively correlated with GAD-7, OCI-R, and PHQ-9. The strongest positive correlation was between PHQ-9 and GAD-7 (0.7).

The results also showed a strong negative correlation between the BSMAS and SMDS (-0.64). The SMDS was negatively correlated with GAD-7, OCI- R, and PHQ-9. The correlation matrix is reported on *Table 6*.

Measure	BERGEN	SMDS	GAD-7	OCI-R	PHQ-9	AUDIT	Alcohol DSM	Nicotine DSM	Fagerstrom Cig	Faggerstrom E-Cig
BERGEN	1	-0.64	0.43	0.36	0.4	0.05	-0.13	-0.3	0.06	0.1
SMDS	**	1	-0.43	-0.36	-0.5	-0.11	0.15	0.16	-0.13	-0.15
GAD-7	**	**	1	0.55	0.7	0.18	-0.15	-0.37	-0.14	-0.13
OCI-R	**	**	**	1	0.52	0.18	-0.23	-0.47	-0.34	-0.3
PHQ-9	**	**	**	**	1	0.19	-0.05	-0.27	-0.16	0.01
AUDIT	**	**	**	**	**	1	0.19	-0.21	-0.09	-0.09
Alcohol DSM	**	**	**	**	**	**	1	0.31	0.16	0.24
Nicotine DSM	**	**	**	**	**	**	**	1	0.41	0.31
Fagerstrom Cig	**	**	**	**	**	**	**	**	1	0.5
Faggerstrom E-Cig	**	**	**	**	**	**	**	**	**	1

Table 6, Spearman's Correlation Matrix

After having calculated correlations, we created categorical columns for each scale from continuous scores, based on whether the score indicated a "severe" condition following the scale's guidelines or not. Chi-square Tests were performed between the BSMAS severity column and all other scales to verify whether an association between them actually exists or if they are independent.

We found a statistically significant association between problematic BSMAS scores and GAD-7, SMDS, PHQ-9, and DSM-5 criteria for Nicotine Use Disorder (*see Tables 7 and 8*).

The associations between BSMAS scores and OCI- R, AUDIT, DSM-5 criteria for Alcohol Use Disorder, and Fagerstrom Test for nicotine dependence, and that for

e-cigarettes were not significant.

	Chi-square Test for Associations			
Measure	x^2	p-value	DoF	Expected Frequencies
GAD-7	8.96	<0.05	1	[117.56, 64.44] [17.44, 9.56]
SMDS	40.17	<0.05	1	[35.70, 146.30] [5.30, 21.70]

Table 7, Chi-Square Test Results

	Fisher's Exact Test for Associations with High Bergen Scale Scores	
Measure	Odds Ratio	p-value
PHQ-9	22.63	<0.05
OCI-R	2.51	**
AUDIT	2.24	**
DSM-5 Alcohol	0.28	**
Fagerstrom Cig	0.52	**
DSM-5 Nicotine	0.1	<0.05
Fagerstrom E-Cig	0.13	**

Table 8, Fisher's Exact Test Results

Lastly, we applied the statistical framework described above to every pair of scales. Every pair that reported a significant p-value was represented in the network graph below (*see Figure 9*).

We designed this graph such that the scales represent the nodes, each category has its nodes color coded, and edges are placed between nodes that reported significant p-values. The edge's weight represents the correlation coefficient between the two nodes. The thicker the line between two variables, the higher their correlation.
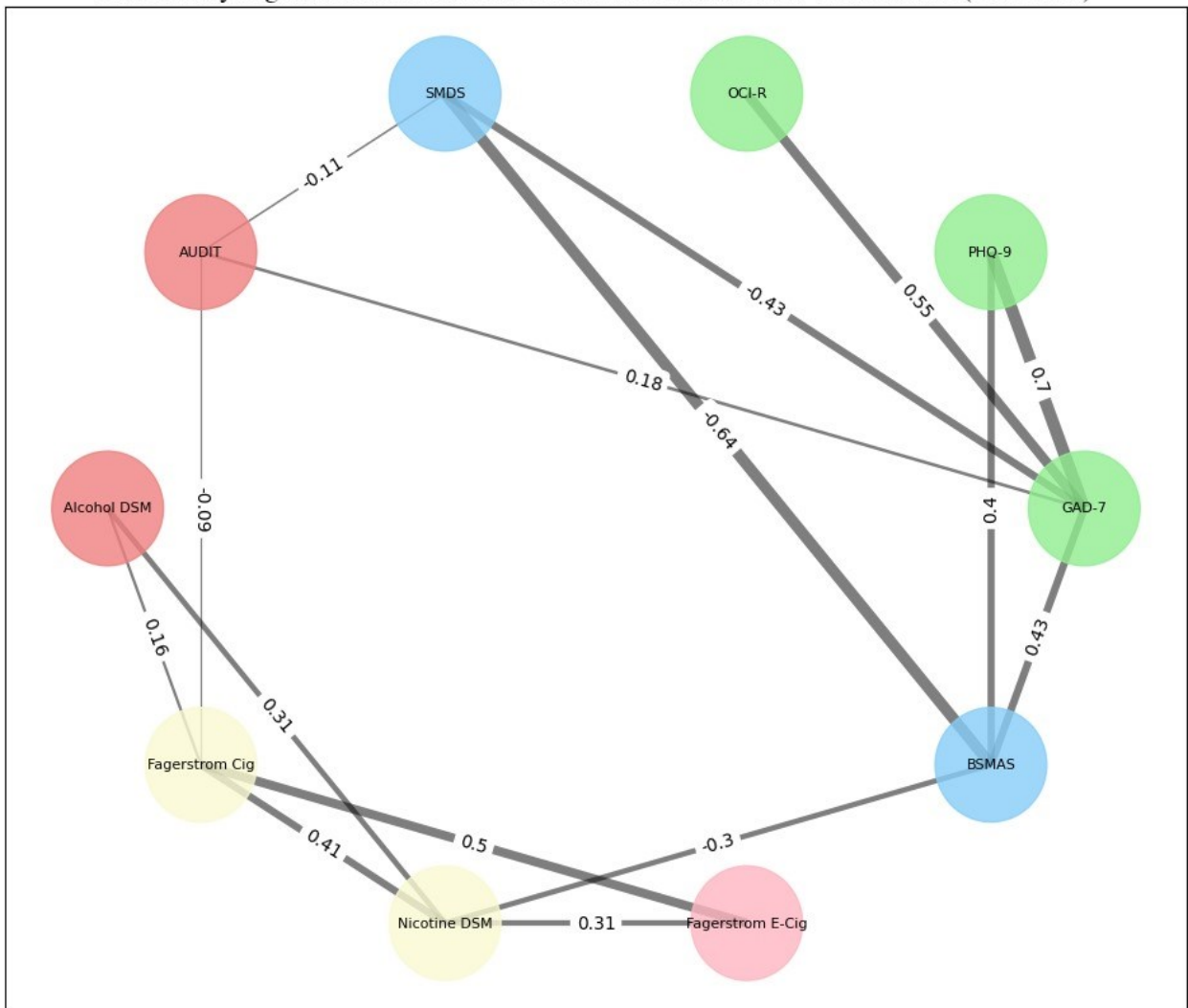
19

Figure 9, Network Graph of Significant Associations and their Correlation Coefficient

As shown in the graph, each group has been assigned a color. Group 1, which comprises of the BSMAS and SMDS, is blue, group 2, which comprises the AUDIT, Fagerstrom for both cigarette and e-cigarette smoking, and the DSM-5 criteria for alcohol, and the second for tobacco consumption, was divided between alcohol (red) and tobacco (yellow) consumption, and group 3, which is in the color green. It is clear how each group's variables are almost all connected and correlated with each other.

If we look at individual scales, we can see that GAD-7 has the greatest number of correlations with other variables, which is 5, while OCI-R has the least, which is 1.

2.6 Discussion and Conclusion

2.6.1 Discussion

The aim of this study was to assess the associations between social media use and alcohol/tobacco consumption, while accounting for anxiety, depression, and obsessions and compulsions. When analyzing our results, we focused on identifying behavioral patterns and addictive behaviors that are linked to social networking habits. From a general overview, we have found a greater majority of participants scoring on the higher-end for the symptoms of obsessive-compulsive disorder, problematic SMU, alcohol consumption, and nicotine dependence, including e-cigarettes, which would classify them on the "at-risk" levels of the relevant scales.

Some unexpected correlations emerged. For example, anxiety scores had a negative correlation with SMDS, and a positive correlation with BSMAS. This suggests possible fundamental inconsistencies between the BSMAS and the SMDS, since both scales aim to assess levels of problematic SMU. Similarly, we found that a large number of participants had scored extremely high on the DSM-5 criteria for Alcohol Use Disorder, whereas there were very low scores in the AUDIT. Specifically, 168 participants were below the AUDIT threshold, while 167 were above the DSM-5 Alcohol Use Disorder threshold. Such findings imply that the scales clearly measure different aspects of the same variables, leading them to be contradictory rather than complimentary in this research.

In terms of SM use and alcohol consumption, correlations between BSMAS, AUDIT, and DSM-5 criteria for Alcohol Use Disorder were non-significant, similarly to the correlations between SMDS and AUDIT and DSM-5 criteria of Alcohol use disorder. While considering the results of the chi-square tests, we conclude that there is no significant association between problematic social media use and problematic

alcohol consumption. This result does not support what was reported in the literature, which implies that higher exposure to SM platforms that display positive aspects of consuming alcohol as content influence greater rates of consumption (Beullens & Schepers, 2013; Erevik et al., 2018).

Based on our findings, not only is drinking alcohol not associated with SM use, but it is also found to be very weakly correlated with all other variables, with the exception of smoking, which is the strongest association with alcohol consumption, with a value of 0.31. These findings go against initial expectations, where we assumed that there would be some significant relationship between drinking and other behavioral or mood-related variables.

The significant positive correlation we observed between the BSMAS and GAD-7 suggests that an increase in SMU is also associated with increased anxiety, which is consistent with the literature (Vannucci, 2017; Rose et al., 2015, Valkenburg et al., 2009). This correlation was expected as multiple studies have already reported that individuals who utilize SM networks experience high stress and anxiety levels, which may be due to multiple factors, such as cyber-bullying, comparing oneself to others on such platforms, being under pressure to stay up-to-date to the trends that relate to these sites, etc. However, the SMDS scores had a significant negative correlation with anxiety scores.

There was also a contradictory finding among the correlations of depressive symptoms with BSMAS and SMDS, where one implied a significant positive correlation, while the other a significant negative correlation, respectively. While this aligns with the literature reporting that more time spent on SM platforms increases isolation and decreases face to face connectivity (Aydin et al., 2021, Thapa, 2018, Oberst et al., 2016), this raises a question of whether individuals had symptoms of

depression before their problematic habits of SMU, or if there was an impact of this habit on their mental health.

The scales assessing cigarette and e-cigarette smoking were highly associated with one another. Although it would have been expected to have a positive relation between cigarette and e-cigarette smoking with anxiety and depression, it was not displayed in our results. Patterns of smoking were found to be negatively correlated with anxiety, depression, and SMU, and positively correlated with the DSM criteria for Alcohol Use Disorder. These results show that having nicotine dependence is not related to the likelihood of having anxiety, depression, or problematic use of SM. However, it is positively linked with Alcohol Use Disorder, which implies that the increased likelihood of having a nicotine dependence is related to that for an alcohol dependence.

Even though there was a high rate of at-risk scores for OCI-R, we have only found a significant positive correlation between that and GAD-7, with a value of 0.55. This consistent with what was mentioned in the literature, in which symptoms of anxiety are prominent in symptoms of obsessive-compulsive disorder (Citkowska-Kisielewska et al., 2019). This result was expected as there exists some overlap between the symptoms of anxiety and obsessive-compulsive disorder. This is the only relation found for OCI-R and any of the variables assessed in this study.

After understanding the dynamics of the correlations that the variables have, or not, among each other, we can refer to *figure 9*, which allows us to visualize these relationships.

2.6.2 Limitations of the Study

Limitations to this study include self-report measures that can cause dishonesty and increased social desirability bias from the participants while completing the survey, despite the assurance of anonymity.

2.6.3 Conclusion

This study aimed to examine the relationships between social media use and alcohol/tobacco consumption, as well as anxiety, depression, and obsessive-compulsive symptoms. Significant associations between SMU and other variables were observed, but only weak/non-significant correlations with alcohol/tobacco consumption. There were clear inter-relations between two main clusters: Alcohol/Tobacco consumption and SMU and anxiety-depression-obsessions-compulsions symptoms. However, the correlations between both clusters were either weak or not directly related, which was against our initial expectations. Therefore, to answer the main research question, there exists notable comorbidity rates between alcohol and tobacco addictions and problematic use of SM with anxiety. It is important to note that SMU shares no significant associations with alcohol and tobacco consumption.

In conclusion, we have gained a better understanding of how such behaviors and moods interact, or not, among one another. We find it insightful to investigate multiple variables under one study to be able to reflect the complexities of human behavior. Lastly, this study encourages future longitudinal research to focus on the temporal trajectories linking problematic/addictive behaviors with other symptoms of psychological distress.

References

Alavi SS, Maracy MR, Jannatifard F, Eslami M. The effect of psychiatric symptoms on the internet addiction disorder in Isfahan's University students. J Res Med Sci. 2011 Jun;16(6):793-800. PMID: 22091309; PMCID: PMC3214398.

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders: DSM-5. Washington, D.C: American Psychiatric Association. (Adapted from Internet Gaming Disorder)

Andreassen CS, Pallesen S. Social network site addiction - an overview. Curr Pharm Des. 2014;20(25):4053-61. doi: 10.2174/13816128113199990616. PMID: 24001298.

Aydin, S., Koçak, O., Shaw, T. A., Buber, B., Akpinar, E. Z., & Younis, M. Z. (2021). Investigation of the effect of social media addiction on adults with depression. Healthcare, 9(4), 450. https://doi.org/10.3390/healthcare9040450

Bandura, A., & Walters, R. H. (1977). Social learning theory (Vol. 1, pp. 141- 154). Englewood Cliffs, NJ: Prentice hall.

Carreras, G., Lugo, A., Stival, C., Amerio, A., Odone, A., Pacifici, R., Gallus, S., & Gorini, G. (2021). Impact of covid-19 lockdown on smoking consumption in a large representative sample of Italian adults. Tobacco Control, 31(5), 615–622. https://doi.org/10.1136/tobaccocontrol-2020-056440

Citkowska-Kisielewska, A., Rutkowski, K., Sobański, J. A., Dembińska, E., Mielimąka, M. (2019). Anxiety symptoms in obsessive-compulsive disorder and generalized anxiety disorder. Psychiatria Polska, 53(4), 845-864. https://doi.org/10.12740/PP/105378

Della Vedova, A. M., Covolo, L., Muscatelli, M., Loscalzo, Y., Giannini, M., & Gelatti, U. (2022). Psychological distress and problematic smartphone use: Two faces

of the same coin? findings from a survey on young Italian adults. Computers in Human Behavior, 132, 107243. https://doi.org/10.1016/j.chb.2022.107243

Di Nicola, M., Tedeschi, D., De Risio, L., Pettorruso, M., Martinotti, G., Ruggeri, F., Swierkosz-Lenart, K., Guglielmo, R., Callea, A., Ruggeri, G., Pozzi, G., Di Giannantonio, M., & Janiri, L. (2015). Co-occurrence of alcohol use disorder and behavioral addictions: Relevance of impulsivity and craving. Drug and Alcohol Dependence, 148, 118–125. https://doi.org/10.1016/j.drugalcdep.2014.12.028

Dixon, S. J. (2023, August 15). Italy social media reach 2028. Statista. https://www.statista.com/statistics/567335/predicted-social-network-user-penetration-rate-in-italy/

E. (2021). From emotional (dys)regulation to internet addiction: A mediation model of problematic social media use among Italian young adults. Journal of Clinical Medicine, 11(1), 188. https://doi.org/10.3390/jcm11010188

Erevik, E. K., Pallesen, S., Andreassen, C. S., Vedaa, Ø., & Torsheim, T. (2018). Who is watching user-generated alcohol posts on social media? Addictive Behaviors, 78, 131–137. https://doi.org/10.1016/j.addbeh.2017.11.023

Fekketich, A. K., Fossati, R., & Apolone, G. (2008). An evaluation of the Italian version of the Fagerström Test for Nicotine Dependence. Psychological Reports, 102(3), 687–694. https://doi.org/10.2466/pr0.102.3.687-694

Foa, E. B., Huppert, J. D., Leiberg, S., Langner, R., Kichic, R., Hajcak, G., & Salkovskis, P. M. (2002). The Obsessive-Compulsive Inventory: Development and validation of a short version. Psychological Assessment, 14(4), 485-496. https://doi.org/10.1037/1040-3590.14.4.485

Freeman, M. A., Hennessy, E. V., & Marzullo, D. M. (2001). Defensive evaluation of

antismoking messages among college-age smokers: The role of possible selves. Health Psychology, 20(6), 424–433. https://doi.org/10.1037/0278-6133.20.6.424

Gagliardi, J. (2024, May 17). Italy: Depression and help-seeking 2022. Statista. https://www.statista.com/statistics/911136/depression-and-help-seeking-in-

Gruppo di ricerca PRISMA, Struzzo, Pierluigi, De Faccio, Sara, Moscatelli, Ermanno, & Scafato, Emanuele Pasquale. (2011). Identificazione Precoce dei Bevitori a Rischio in Assistenza Primaria in Italia: Adattamento del Questionario Audit E verifica dell'efficacia d'uso Dello short-audit test nel Contesto Nazionale (Vol. 29:20– 5). Ministero della sanità. Direzione generale servizi medicina Sociale.

Heatherton et al: The Fagerstrom test for nicotine dependence: a revision of the Fagerstrom Tolerance Questionnaire. Br. J. Addiction, 1991; 86 1119-112. italy/#:~:text=As%20of%202022%2C%20about%206.2,state%20between%20 2021%20and%202022.

Kardefelt-Winther, D. (2014). A conceptual and methodological critique of internet addiction research: Towards a model of compensatory internet use. Computers in Human Behavior, 31, 351–354. https://doi.org/10.1016/j.chb.2013.10.059

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. Journal of General Internal Medicine, 16(9), 606-613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Marchetti, I., Chiri, L., Ghisi, M., Sica, C.. (2010). Obsessive- Compulsive Inventory-Revised (OCI-R): Presentazione e indicazioni di utilizzo nel contesto Italiano. Psicoterapia Cognitiva e Comportamentale, 16, 69-84.

Monacis, L., de Palo, V., Griffiths, M. D., & Sinatra, M. (2017). Social networking

addiction, attachment style, and validation of the Italian version of the Bergen Social Media Addiction Scale. Journal of Behavioral Addictions, 6(2), 178–186. https://doi.org/10.1556/2006.6.2017.023

Moreno, M. A., & Whitehill, J. M. (2014). Influence of social media on alcohol use in adolescents and young adults. Alcohol research: current reviews. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4432862/

Oberst, U., Wegmann, E., Stodt, B., Brand, M., & Chamarro, A. (2016). Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out. Journal of Adolescence, 55(1), 51–60. https://doi.org/10.1016/j.adolescence.2016.12.008

Press release n°39/2022 - smoking: Italy reports almost 800,000 smokers more than in 2019 and the consumption of heated tobacco products has tripled. ISS. (n.d.). https://www.iss.it/en/-/no-tobacco-day-2022-iss-en

Quaglieri, A., Biondi, S., Roma, P., Varchetta, M., Fraschetti, A., Burrai, J., Lausi, G., Martí-Vilar, M., González-Sala, F., Di Domenico, A., Giannini, A. M., & Mari,

Rose, C. A., & Tynes, B. M. (2015). Longitudinal associations between Cybervictimization and mental health among U.S. adolescents. Journal of Adolescent Health, 57(3), 305–312. https://doi.org/10.1016/j.jadohealth.2015.05.002

Seabrook, E. M., Kern, M. L., & Rickard, N. S. (2016). Social networking sites, depression, and anxiety: A systematic review. JMIR Mental Health, 3(4). https://doi.org/10.2196/mental.5842

Shmueli, D., Prochaska, J. J., & Glantz, S. A. (2010). Effect of smoking scenes in films on immediate smoking. American Journal of Preventive Medicine, 38(4), 351–358. https://doi.org/10.1016/j.amepre.2009.12.025

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. Archives of Internal Medicine, 166(10), 1092-1097. https://doi.org/10.1001/archinte.166.10.1092

Statista. (July 25, 2023). Social network user penetration in Italy from 2019 to 2028 [Graph]. In Statista. Retrieved July 17, 2024, from https://www.statista.com/statistics/567335/predicted-social-network-user-penetration-rate-in-italy/

Struzzo, P., Faccio, S., Moscatelli, E., Scafato, E. & GRUPPO PRISM. (2006). Identificazione precoce dei bevitori a rischio in Assistenza Primaria in Italia: adattamento del questionario AUDIT e verifica dell'efficacia d'uso dello short-AUDIT test nel contesto nazionale. Bollettino per le farmacodipendenze e l'alcoolismo. 29. 20–5.

Sun, Y., & Zhang, Y. (2021). A review of theories and models applied in studies of Social Media Addiction and implications for future research. Addictive Behaviors, 114, 106699. https://doi.org/10.1016/j.addbeh.2020.106699

Thapa, R., & Subedi, S. (2018). Social media and depression. Journal of Psychiatrists' Association of Nepal, 7(2), 1-4.

Valkenburg, P. M., & Peter, J. (2009). Social Consequences of the internet for adolescents. Current Directions in Psychological Science, 18(1), 1–5. https://doi.org/10.1111/j.1467-8721.2009.01595.x

Valkenburg, P. M., van Driel, I. I., & Beyens, I. (2021). The associations of active and passive social media use with well-being: A critical scoping review. New Media & Society, 24(2), 530–549. https://doi.org/10.1177/14614448211065425

Van den Eijnden RJ, Meerkerk GJ, Vermulst AA, Spijkerman R, Engels RC. Online communication, compulsive Internet use, and psychosocial well-being among

adolescents: a longitudinal study. Dev Psychol. 2008;44(3):655–65.

Vannucci, A., Flannery, K. M., & Ohannessian, C. M. (2017). Social media use and anxiety in emerging adults. Journal of Affective Disorders, 207, 163–166. https://doi.org/10.1016/j.jad.2016.08.040

Young, K. S. (1998). Caught in the net: How to recognize the signs of internet addiction—And a winning strategy for recovery. New York, NY: John Wiley & Sons.

Young, K. S. (2004). Internet addiction. American Behavioral Scientist, 48(4), 402–415. https://doi.org/10.1177/0002764204270278