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# A SOCIAL MEDIA AND SUBSTANCE USE AMONG THE YOUTH: A TEST OF TWO MEDIATION MECHANISMS

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**Abstract:** *This paper is aimed at testing the direct and indirect connections of social media use with substance use (smoking and drinking alcohol). It was hypothesized that one direct and two mediation mechanisms existed: the social comparison hypothesis (perception of financial deprivation) and hedonistic behaviour hypothesis. Both hypotheses were tested with a research sample of young people aged 15-30 in Croatia (N = 481) during 2020 as part of a European Social Fund project. The proposed models were analysed by means of structural equation modelling in order to test the research hypotheses. The results showed that social media use was neither directly connected to substance use (smoking and drinking) nor indirectly connected through financial deprivation, but was indirectly connected through the hedonistic use of leisure time mediation path. Financial deprivation was also directly connected to substance use, while gender was indirectly connected through the hedonistic use of leisure time. Based on the study results, the authors call for a more nuanced research of social media effects.*

**Keywords:** *social media; smoking; alcohol drinking; social comparison; hedonistic values*

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## Introduction

Contemporary digital media contribute to the construction of social reality in such a way that we can even speak about “deep mediatization”, wherein all aspects of social reality are profoundly linked to the media technologies (Couldry and Hepp, 2020; Hepp, 2020; Jora et al., 2022). Young people represent a social group who is particularly affected by both negative and positive sides of the mediatized society (Valkenburg and

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Piotrowski, 2017). Therefore, it is no wonder that the relationship between young people (especially teenagers and adolescents) and new media is becoming increasingly researched in social science literature (Pattaro, 2015). Among other topics, possible influences of social media use on substance use comprise a worthwhile research topic. The main goal of this paper is to test direct and indirect connections of social media use with substance abuse (smoking and drinking alcohol) in Croatian youth. It was hypothesized that there will be a direct effect of social media use, with two existing mediation mechanisms: the social comparison hypothesis (perception of financial deprivation) mechanism and the hedonistic behaviour hypothesis. The direct effect of social media use is premised on the idea of social learning, i.e. on the assumption that addictive behaviour is often positively portrayed via social media, especially among peers. The indirect effect of social media through financial deprivation mediation path is based on the idea that social media promote the social comparison effect among the peers, stemming from the identification with peers or other reference group members, often depicted as wealthy and professionally or privately successful. The indirect effect of social media through hedonistic behaviour/use of leisure time mediation path is established on the assertion that such behaviour is often highly valued among peers or reference group members, as well as considered and portrayed as desirable on social media.

As for the previous research related to the social comparison hypothesis, Chou and Edge (2012) found that undergraduate students who spent more time on Facebook were more likely to agree that others were happier and had better and fulfilled lives, while those who used Facebook longer longer disagreed that life was fair and believed others were happier. Robinson et al. (2019) found that specific social media behaviour, such as comparing yourself to others better off than you are, were more likely to meet the criteria for major depressive disorder, while Tandoc and Goh (2021) correlated increased Facebook use with more envy and higher levels of depression. Wang et al. (2017) determined that passive SNS use leads to upward social comparison which finally leads to lower levels of self-esteem and subjective well-being. However, recent studies advised a more nuanced view on the topic. For example, Ouwerkerk and Johnson (2016) stated that social media use among some people can be related to darker motives related to self-enhancement, such as others providing a target for downward social comparison and „*hate following*“. On the other hand, Johnson and Knobloch-Westerwick (2017) claimed that upward comparison may not have detrimental effects on user well-being if group identification is high. In other words, successful in-group models can lead to optimistic mood related to one's future success by opening-up positive prospects for the social media user identified with successful models. Meier and Schäfer (2018) found that social comparison can elicit benign envy which motivates people to set the higher behavioral targets. When everything is considered, it is not surprising that a critical review conducted by Meier and Johnson (2022) revealed inconsistent relations between social media use, envy and deteriorating well-being, with a preliminary conclusion that effects can be either positive, person-specific, conditional or reciprocal. As for the relation between financial deprivation and substance use, the predominant theoretical rationale underlying expected associations between experiences of financial strain and alcohol or tobacco use was investigated as the tension-reduction hypothesis (Abbey, Smith and Scott, 1993; Greeley and Oei,

1999). From this perspective, alcohol or tobacco use as coping devices may be associated to financially related stress, even though empirical support for the tension-reduction hypothesis with respect to financial strain, alcohol use, and smoking has been inconclusive (Kendzor et al., 2010; Veenstra et al., 2006). For example, Shaw, Agahi and Krause (2011) found exposure to financial strain placed some groups of older adults at increased risk for unhealthy drinking and smoking, whereas others established financial problems to be associated with reduced alcohol use (Brennan, Schutte and Moos, 1999).

When it comes to the relation between social media, hedonistic behaviour and substance use, this relationship is more empirically established in comparison to previously described associations. Griffin (1986) and Weijers (2012) defined hedonism as a theory of value which holds the attainment of both mentally and physically induced sensations of pleasure as life's ultimate goal. Due to its effects on the dopamine system and the amount of time people spend using it, social media has been linked to addictive behaviours similar to those of substance and gambling addictions (Turel, He, Xue, Xiao and Bechara, 2014; as cited in Daudi, 2022). Sites like Instagram, Facebook or TikTok provide an environment where kids are exposed to models of risky behaviours involving drugs and alcohol, thus normalizing and glamorizing behaviour such as illicit and prescription drug use or binge drinking. Hilliard (2019) reported that teenagers who regularly use popular social media outlets were more likely to drink, use drugs, and buy tobacco than adolescents who either did not use social media or used it less frequently. In addition, social media proved to be a catalyst for many mental health problems that can lead to substance abuse, as it perpetuates social comparison in a world where everything is curated, making this particularly problematic for teens (Steers, 2016; Society for Adolescent Health and Medicine, 2017).

## **Research Goal and Hypotheses**

The main goal of the study was to conduct an in-depth study of the relation between social media, financial deprivation and substance abuse. In this way, we expand the previous research by simultaneously testing various research hypotheses in a one integrative model. Based on the research goal, the methodological design was focused on the investigation of the mediating role of financial deprivation and hedonistic behaviour when it comes to the relationship between

The first hypothesis rests upon an assumption that there is a direct relationship between social media use and substance use which cannot be explained through the proposed mediation paths. As already noted, the direct path is based on the idea of social learning, i.e. on the assumption that smoking and alcohol use are most often positively portrayed in social media. The remaining two hypotheses aim to test the aforementioned mediation paths, which are based on the previous theoretical framework and conducted research studies. The first mediation path is based on the social comparison hypothesis and tension-reduction hypothesis, while the second hypothesis rests upon the assumption that hedonistic behaviour/use of leisure time is

positively portrayed in social media, while at the same time being the part of the same sensation-seeking behaviour as smoking and alcohol use. Therefore, the following hypotheses were proposed:

H1: There will be a direct effect of social media use on substance use;

H2: There will be an indirect effect of social media through financial deprivation;

H3: There will be an indirect effect of social media through hedonistic behaviour.

## Methods and Sampling

In order to test the above-mentioned hypotheses, an online survey among the youth in Croatia was conducted. The survey questionnaire included the following constructs and indicators:

1. Perception of one's own financial deprivation – from 1 (very satisfied) to 10 (very unsatisfied);
2. Frequencies of smoking and alcohol use – from 1 (never) to 5 (very often);
3. Frequency of hedonistic behaviour, i.e. going to musical concerts, clubs and parties – from 1 (never) to 5 (very often);
4. Frequency of social media use (Facebook and Instagram) – from 1 (never) to 5 (very often).

Additionally, among the collected socio-demographic data, gender was used in this research as a control variable. The data was collected with a convenient sample of Croatian adolescents (N=481) in 2020 using a snowball sampling procedure, within the framework of the “WeTheYouth” project financed by the European Social Fund. The main project institution was the World Youth Alliance Croatia, with the Faculty of Humanities and Social Sciences as one of the project partners. The sample comprised of 80.63% female and 19.37% male respondents, with 61.95% university students. The sample had 25.37% employed and 12.68% unemployed participants. The age mean was 23.07 years (12 missing answers), with sample age ranging from 15 to 30 years.

Our analytic approach consisted of several steps. First, we present descriptive variable data and bivariate correlations in order to gain the initial insight into the relationships between the variables. We employed structural equation modelling, using SPSS AMOS 23 with the aim of hypotheses testing. This analytical approach enabled testing the direct and indirect relationships between the variables, by accounting for the measurement errors present in the data (Collier, 2020). The following fit index benchmarks were used in estimating the model fit: (1) Relative chi-square test (CMIN/df) < 3 (Kline, 2015); (2) RMSEA less than .05 (Browne and Cudeck, 1992), and (3) CFI and TLI > 0.9 (Marsh et al., 2014).

## Results

The descriptive data of the studied variables are presented in Table 1. Our sample demonstrates a relatively high level of financial deprivation among youth. Smoking and alcohol drinking were somewhere in the middle of the employed scale, while hedonistic behaviour indicators were below the middle of the scale. The use of social media (Instagram and Facebook) is somewhat above the middle of the scale.

**Table 1: Descriptive data on variables**

Variable	N	Min	Max	M	SD
Financial deprivation	659	1	10	6.22	2.26
Smoking	659	1	5	2.16	1.52
Alcohol drinking	659	1	5	2.44	0.98
Concerts	659	0	4	1.37	0.88
Clubs	659	0	4	1.26	0.95
Parties	659	0	4	1.70	0.94
Instagram	659	0	4	2.89	1.64
Facebook	659	0	4	3.34	1.17

*Source: Authors' research*

Bivariate Pearson correlations for all of the studied variables are presented in Table 2. Our results show that alcohol use and smoking positively correlate with hedonistic behaviour. Facebook use positively correlates only with alcohol drinking, while Instagram use does not correlate with neither alcohol use nor smoking. Financial deprivation is positively correlated with alcohol use and smoking, but no such relation was established for social media use.

**Table 2: Bivariate correlations matrix**

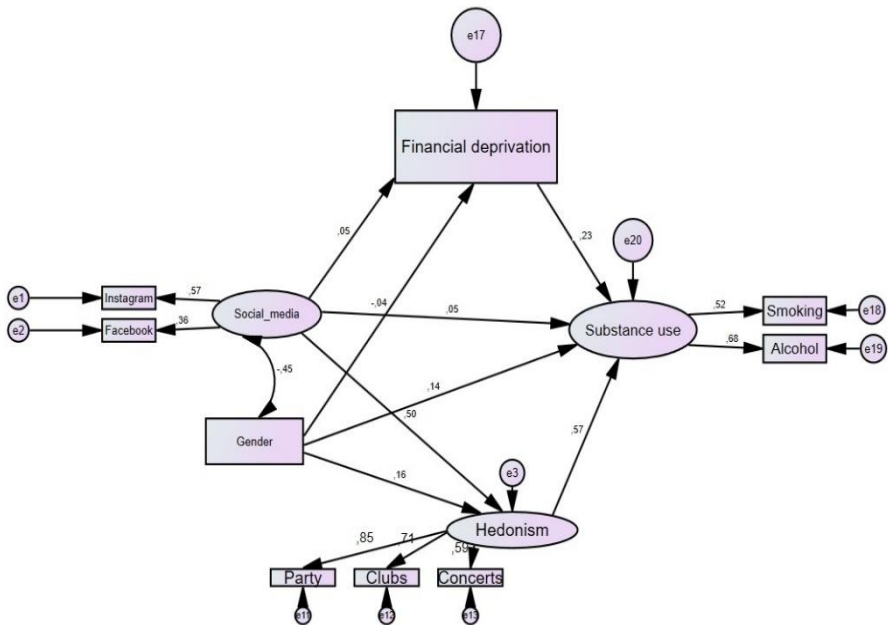
	Gender	Facebook use	Instagram	Alcohol drinking	Smoking	Parties	Clubs	Concerts	Financial dep.
Gender	/	-.17**	-.25**	.01	.10*	-.05	-.08	-.08	.01
Facebook	-.17**	/	.22*	.12*	.05	.11*	.16*	.08	.03
Instagram	-.25**	.22**	/	.09	.04	.18**	.31**	.13**	.04
Alc. drin	.01	.12*	.09	/	.36**	.39**	.30**	.20**	.12*
Smoking	.10*	.05	.04	.36**	/	.20**	.20**	.13**	.22**
Parties	-.05	.11*	.18**	.39**	.20**	/	.60**	.52**	.00
Clubs	-.08	.16**	.31**	.30**	.20**	.60**	/	.40**	.04
Concerts	-.08	.08	.13**	.20**	.13**	.52**	.40**	/	.00
Fina. dep.	.01	.03	.04	.12*	.22**	.00	.04	.00	/

Note:  $p < .05^*$ ;  $p < .01^{**}$ ;  $p < .001^{***}$

*Source: Authors' research*

As stated before, we proceeded with the hypotheses testing. Below, a structural equation model with standardized coefficients is presented. The total (direct and indirect) effect of social media use on substance use was 0.69. That is, due to both direct (unmediated) and indirect (mediated) effects when social media goes up by 1, substance use goes up by 0.69. The direct (unmediated) effect of social media on substance use is 0.106. However, this effect is not statistically significant. The indirect effect of social media through hedonistic behaviour is 0.56, while the remaining 0.02 pertains to the insignificant indirect effect through financial deprivation.

*Figure 1. Structural Equation Model*



*Source: Authors' research*

Model fit values were as follows: CMIN/df = 2.55; CFI = 0.96; TLI = 0.90; RMSEA = 0.04 (HI 90 = 0.05. LO 90 = 0.03), thus indicating an acceptable model fit. Therefore, we can conclude that financial deprivation is indeed directly connected with substance use. However, the indirect path of social media through financial deprivation is not significant. Therefore, we can reject the social comparison hypothesis. On the other hand, the indirect path of social media use through hedonism remains significant.

## Discussion

Overall, our study confirmed the mediation path through hedonistic behaviour (H3), while the direct effect (H1) and mediation path through financial deprivation (H2) were not confirmed.

As for H1 and H2, the results of our study point to the possibility that social media comparison does not necessarily have to have detrimental effects on a person, mainly due to the possibility of others providing a target for downward social comparison, or through benign envy which motivates people for behavioural change (Han, 2022). For instance, an experimental study conducted by Lewallen and Behm-Morawitz (2016) confirmed a negative influence of social media use on body image, but also confirmed that upward social comparison was linked to exercise motivation, i.e. intentions to engage in weight loss behaviour. Another possible explanation of the negative finding related to financial deprivation could be that financial status of a person on social media might not be as visible as her/his „*happiness status*“. Namely, people tend to share positive and joyful elements of their lives, while their financial status is less directly presented. Displaying wealth on social media might be perceived as too intrusive, condescending and vulgar, thus making a person less attractive to others. This was confirmed in a study conducted by Garcia, Weaver and Chan (2018), in that demonstrating high-status markers on social media made individuals less attractive as potential new friends to the other social media users. Moreover, displaying wealth on social media might be undesirable due to security or legal (i.e. tax obligations) purposes, as well. Therefore, financial deprivation might not be a path of social media comparison that leads to substance use, but such paths could be found among factors such as general life satisfaction, which was not included in our research design. The results of our study also pose a challenge to the idea that social media directly influence the frequency of smoking and alcohol use, but this might not be surprising given that the hedonistic behaviour/use of leisure time accounted for this finding. Namely, social media promote hedonistic behaviour by enticing young people to spend their time in a hedonistic manner.

As for our H3, the strong indirect path between social media use and substance use via hedonistic leisure activities point to the fact that young people are subjected to “normative ambivalence” (Weinberg, 2011) as a results of social media use. Namely, social media models provide a competing normative orientation which conflicts usual negative societal reaction towards smoking and alcohol drinking, which is embedded into mainstream normative orientation to which the youth are exposed during their primary and secondary socialization. Young people who are more exposed to social media influence, are more often prone to normative orientations which glorify smoking and drinking as part of their independence and freedom from the adult world. A 2008 systematic review on the impact of media exposure (both the amount and content) on children’s health and development compared seven health outcomes such as childhood obesity, tobacco use, sexual behaviour, drug use, alcohol use, low academic achievement and attention deficit hyperactivity disorder. Out of the ten studies on media and alcohol, eight studies (80%) reported a significant association between media exposure and an increase in alcohol use and an earlier onset in teen drinking. Eight

additional studies evaluated media and drug use—75% reported a significant relationship between media exposure and cocaine, marijuana, methamphetamines and ecstasy use (The Impact of Media on Child and Adolescent Health, 2008:3). Adolescent substance use is a major concern because of the health-risk behaviours associated with substance use such as dangerous behaviours, violence or unsafe sex (Hjarnaa, Hviid, Becker, Laursen and Tolstrup, 2020), the adverse health consequences and elevated risks of mortality or suicidal behaviors, both occurring in adolescence and later in life (Bonnie et al., 2004; Esposito-Smythers and Spirito, 2004; Clark, Martin and Cornelius, 2008). Substance use in adolescence has a strong co-occurrence with mental health problems (Storr et al., 2012; Schulte and Hser, 2013), and prognostic significance in the development of mental health problems and consequent substance use problems throughout adolescence and into adulthood (Wymbs et al., 2014). Similarly, mental health issues occurring in adolescence were predictive of mental and substance use problems in adulthood (Copeland, Shanahan, Costello and Angold, 2009; Ning, Gondek, Patalay and Ploubidis, 2020; as cited in Santini et al., 2020). Still, even though adolescents clearly allocate leisure time for substance use experiences, the relation between leisure activities and substance use remains inconclusive. A cross-sectional nation-wide study with 2,488 participants aged 15 to 16 in Denmark, assessed the relation between the number of leisure activity types, mental health and substance use outcomes (ESPAD, 2019; as cited in Santini et al., 2020). Results showed that engaging in multiple activity types at least once a week—as compared to single type activities—was associated with increased chances for high mental well-being and reduced mental health problems, reduced overall substance use and a decrease in using substances as a coping method (Santini et al, 2020).

## **Conclusion**

Our study was aimed at testing the direct and indirect relations of social media and substance use through one direct and two mediation mechanisms – the social comparison and hedonistic behaviour hypotheses. Our results imply that financial deprivation was directly connected with substance use, but the indirect path of social media through financial deprivation remained insignificant. The findings point out to the future venues of research which should study the effects of social comparison in a more nuanced way, by accounting both for positive and negative effects of social comparison on social media on young people. On the other hand, the indirect path of social media use through hedonism showed a significant effect, providing a competing normative orientation through social media models, which could have important implications for future prevention programmes and educational or clinical practice. One of the many avenues in promoting mental health and substance use prevention for adolescents could be to motivate their engagement in structured leisure activities with the goal of enhancing their resilience, especially through educational and socially desirable preventive programmes.



As for the limitations of our study, we need to point out that our measurement of social comparison only included the perception of financial deprivation, as well as that our measurement included limited number of indicators for all the construct that were part of the model (social media use, substance use, and hedonistic behaviour). The inclusion of additional indicators in future research would certainly expand the construct validity of the model tested in the study.

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## Declaration of conflicting interests

The authors declare no conflicting interests.

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