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**DOES ACTIVE SOCIAL MEDIA USE IMPROVE SUBJECTIVE WELL-BEING? –
A MEDIATION MODEL**

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Abstract: *Social media use is inherently linked to everyday life in the digital world, from professional contexts to leisure time. Prior research focused on antecedents of social media use such as personality traits, age, gender, social skills, and also on broad range of its various effects. Positive effects include extension of friendship network, diminishing anxiety in social interaction, and improving exercise motivation. Problematic social media use and addiction are related to stress, depression, suicidal thoughts, loneliness, and scarce school engagement. Less attention has been paid to the relationship between social media use and well-being. Inconsistent results were obtained; being emphasized either small relationship between time spent using social media and psychological well-being, or absence of significant correlation.*

Aims: *Therefore, we analyzed in this research what degree and how active social media use and self-esteem would lead to subjective well-being. Starting from the necessary distinction between the passive and active social media use, the aim of this study was to analyze the direct and indirect effects of active use and self-esteem on subjective well-being.*

Method: *Based on a cross-sectional design, the survey data was collected from a sample consisted of 653 participants (male = 274; $M_{age} = 21.52$; $SD = 4.33$). To verify the hypothesized direct and indirect effects included in the multiple mediation model, a path analysis was performed.*

Results: *The findings showed positive association between active social media use, self-esteem, affective engagement in social media use, sense to belong to online community, number of friends/followers, and subjective well-being. The path analysis revealed excellent fit between proposed mediation model and sample data. Active social media use has directly effect on subjective well-being, and indirectly via sense to belong to online community. Interaction between active social media use and self-esteem significantly predicts subjective well-being. The relationship between affective engagement in social media use and sense to belong to online community is mediated by number of friends or followers on social media platforms.*

Conclusion: *The findings of this study extend the previous research, providing support for the relationship between active social media use and subjective well-being.*

Keywords: *active social media use; number of friends/followers; affective engagement in social media use; sense to belong to online community; subjective well-being; mediation analysis.*

INTRODUCTION

I. THEORETICAL BACKGROUND

Social media use is inherently linked to everyday life in the digital world, from professional contexts to leisure time. It is developed on Internet-based applications for creation and exchange of user generated content (Kaplan & Haenlein, 2010) bonding and bridging the people together. Prior

research focused on antecedents of social media use, mainly personality traits, age, gender, social skills, and also on broad range of its various effects. Positive effects include extension of friendship network (Kim & Lee, 2011), quality of life, diminishing anxiety in social interaction, and improving exercise motivation. Problematic social media use and addiction are related to stress (Macmillan, 2016), depression (Gilchrist, 2017; Pantic, 2014), suicidal thoughts, loneliness (Bhat, 2017), and scarce school engagement.

Social media being always at hand allows the possibility to be in touch with friends, colleagues and family, to facilitate and maintain strong and weak ties (Best & Krueger, 2006). Strong ties suppose intimacy and trusts offered by family members, significant others and close friends. Weak ties involve low degree of emotional connections, acquaintances with low closeness and intimacy. The main benefits of weak ties consist in bridging unconnected groups, access to novel information and dissemination of heterogeneous information (Chen & Li, 2017). Eliminating spatial and geographical constraints, social media communication enable people to expand their social networks. Thus, their resources grow, contributing to the bonding and bridging capital extension. According to Putnam (2000), bonding capital includes strong ties, and bridging capital weak ties.

Less attention has been paid to the relationship between social media use and well-being (Berg & Derlaga, 2013; Chen & Li, 2017; Jin & Park, 2013). Results show inconsistencies, providing evidence either positive impact on psychological well-being (Steinfeld et al., 2008) or negatives effect (Lup et al, 2015, Sherlock & Wagstaff, 2020). Previous findings emphasized that friending on social media contribute to social bridging and social capital (Chan, 2013) which in turn impact psychological well-being (Chen & Li, 2017). High frequency of online social interactions improves life satisfaction (Valkenburg et al., 2006). The number of friends or followers on social media platforms increases life satisfaction (Burke, Marlow & Lento, 2010). As mentioned above, inconsistent results were obtained; being emphasized either small relationship between time spent using social media and psychological well-being, or absence of significant correlation.

Based on previous body of research on outcomes of social media use and causal link between self-esteem and subjective well-being (Baumeister et al., 2003), this inquiry aims to understand what degree and how active social media use would lead to subjective well-being.

II. THE PRESENT STUDY

The aim of this study was to analyse possible routes by which social media active use and self-esteem might be associated with subjective well-being using a path analysis. The proposed model included active social media use, self-esteem, and their interaction as the exogenous variables and subjective well-being, affective engagement in social media use, sense to belong to online community, and number of friends/followers as endogenous variables.

III. METHODS

3.1. Participants

The sample comprised 653 university students (274 males) with ages ranging between 19 and 25 years ($M_{age} = 21.52$ years; $SD = 4.33$).

3.2. Measures

The Rosenberg Self-esteem Scale (RSES). The RSES (Rosenberg, 1965) is a 10-item scale that indexes participants' affective dimension of the self (sample item: "I am able to do things as well as most other people") and assesses self-esteem. The items are answered on a four-point Likert scale (0=strongly disagree; 3=strongly agree). Higher scores indicate greater self-esteem. Cronbach's α in the present study was .87.

The Subjective well-being. It is a composed measure including cognitive dimension (life satisfaction) and affective dimension measure (subjective happiness). Cronbach's alpha was .80.

Satisfaction with Life Scale (Diener, Emmons, Larsen, and Griffin, 1985). Each item was scored from 1 to 7, the possible range of scores on this scale being from 5 (low satisfaction) to 35 (high satisfaction). Sample items include: "In most ways my life is close to my ideal", "The conditions of my life are excellent", "If I could live my life over, I would change almost nothing". Higher scores indicate higher levels of life satisfaction. Cronbach's alpha was .78.

The Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) was used to assess the affective component of subjective well-being. According to Diener (1994), this subjective measure reflects a broader and more molar category of wellbeing. It is a 4-item scale with a possible range of scores from 1 to 7, with higher scores reflecting greater happiness. Two items ask respondents to describe themselves as a not very happy or a very happy person, using the 7-point Likert scale ("Compared to most of my peers, I consider myself"), while the other two items ask respondents the extent to which two characterizations of a happy and an unhappy person describe them ("Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?"). Cronbach's alpha was .85.

Active social media use. This variable was assessed by three questions whose answers were given on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree; sample item: "I use various social media platforms to interact with other people"). Cronbach's alpha was .83.

Affective engagement in online communication. It was measured by two questions: "I feel good when I connect with others through social media (Facebook, Instagram, etc.); "I am happy to spend time browsing social media". Response options were from 1 = strongly disagree to 5 = strongly agree. Cronbach's alpha was .82.

Sense to belong to social media. This variable was assessed by a single-item on a five-point Likert scale (1 = not at all; 5 = to a large extent): "How much do you feel that you are a member who matters in online community created on various platforms such as Facebook, Instagram, etc?"

Number of friends/followers on social media. This variable was assessed by a single-item on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree): "How many friends do you have on social media platforms?"

3.3. Procedure

Participation in this study was voluntary. The participants were informed that the main aim of this study was to explore factors related to the social media use. We ensured that the research was ethically conducted, in accordance with Declaration of Helsinki principles. Informed consent was received for the all participants. It has been specified in the informed consent sheet that they have the possibility to stop to participate in this research whenever they wished. Their option would be respected in any circumstances, without the need for any explanation. The participants were also informed that their responses were anonymous.

3.4. Research hypothesis

Based on previous findings it was predicted that:

H₁ – There is a positive relation between active social media use and: affective engagement in online communication, sense to belong to online community, number of friends/followers, self-esteem, and subjective well-being

H₂ – Active social media use, sense to belong to social media community, number of friends/followers and self-esteem positively predict subjective well-being

H_{2,1} – Interaction between active social media use and self-esteem predicts subjective well-being

H₃ – Active social media use and affective engagement in online communication positively predict sense to belong

H₄ – Affective engagement in online communication and self-esteem positively predict number of friends/followers

H₅ – Active social media use has an indirect effect on subjective well-being via sense to belong to online community

H₆ – Number of followers has a mediating role between affective engagement in online communication and sense to belong to online community

H₇ – Number of friends/followers has an indirect effect on subjective well-being via sense to belong to online community

H₈ – The relationship between active social media use and subjective well-being is mediated by sense to belong to online community

We propose the following research question and test a specified model based on the hypotheses proposed above to understand how active social media use affects subjective well-being through sense to belong to online community and how interaction between active social media use and self-esteem impacts subjective well-being:

RQ: Does the proposed mediation model have a good fit with the data?

3.5. Statistical analysis

Statistical Package for Social Science (SPSS 23) and Analysis of Moment Structure (AMOS 23) were used to analyze the data. Reliability of the scales and univariate normality distribution were testified. The multivariate normality distribution of variables was measured using Mardia's Multivariate Normality Test. The various paths of the model were tested with structural equation modeling with AMOS 23, using (MLE) maximum standard likelihood estimation. The relationships specified in the model were checked for significance and goodness-of-fit. Model fit was verified by absolute indices: GFI (*goodness-of-fit index*), AGFI (*adjusted goodness-of-fit-index*), model chi-square value, *p* value, *df*, *Cmin/df*, RMSEA (*Root Mean Square Error of Approximation*), CFI (*Bentler comparative fit index*), NFI (*Bentler-Bonnet normed fit index*), IFI (*Bollen incremental fit index*), and TLI (*Tucker Lewis fit index*). According to Hu & Bentler (1999), the cutoff criteria for comparative fit indexes is $\geq .95$, for RMSEA $< .06$, for RMR smaller the better, 0 indicating perfect fit, for GFI $\geq .95$, and for SRMR $< .08$. The mediation models were verified with the test for mediation in AMOS, using the bootstrapping method performed on the 5000 bootstrap samples.

IV. RESULTS

Descriptive statistics displayed in the table 1 prove normally univariate distribution of the data, taking into account the cutoff criteria ± 2 for skewness and kurtosis, following Gravetter & Walnau (2014). The Mardia's coefficient turns out non-normal multivariate distribution of the data, kurtosis and critical ratio being more than cut off criteria < 5 (kurtosis = 20.23; c.r. = 34.40), indicated by Hu & Bentler (1999). This issue was addressed using ML bootstrapping technique, as Byrne (2006) recommended. Using this technique with 5000 of bootstrap samples it was obtained the mean of the distribution (4.63) and standard deviation (0.42). ML discrepancy reflected the fitting the model with the bootstrap 5000 samples.

Descriptive statistics	Active social media use	Affective engagement in online communication	Sense to belong to online community	Subjective well-being	Self-esteem
Mean	12.27	5.18	2.76	31.80	36.47
Std. deviation	.153	.094	1.376	7.05	7.059
Skewness	-.129	-.20	-.145	-.191	-.485
Std. Error	.106	.106	.106	.106	.106
Kurtosis	-.340	-.72	-1.192	-.246	-.246
Std. Error	.212	.212	.212	.212	.212

Table no. 1. Descriptive statistics

Pearson product-moment correlation coefficients mentioned in the table 2 confirmed the first hypothesis, being obtained small but significant positive correlations between active social media use and: subjective well-being, affective engagement in online communication, sense to belong to online community, self-esteem, and number of friends/followers.

	1	2	3	3	5	6
1. Active social media use						
2. Subjective well-being	.21					
3. Self-esteem	.12	.54				
4. Sense to belong to online community	.26	.13	.05			
5. Affective engagement in online communication	.28	.05	-.05	.55		
6. Number of friends/followers	.13	.13	.13	.22	.17	_

Table no. 2. Correlation matrix

To test the next three hypotheses assuming various predicting roles, a series of linear regression was performed. Significant regression equations were found. The H₂ presumed that active social media use ($\beta = .12, t(528) = 2.85, p < .001$), sense to belong to online community ($\beta = .13, t(528) = 3.08, p < .001$), number of friends/followers ($\beta = .13, t(528) = 2.93, p < .01$) and self-esteem ($\beta = .54, t(528) = 14.97, p < .001$) predict subjective well-being. Moderating role of self-esteem mentioned in H_{2.1} was certified. Interaction between active social media use and self-esteem has a significant predictive role on subjective well-being ($\beta = .11, t(527) = 2.99, p < .01$). As assumed in the H₃, results confirmed that active social media use ($\beta = .25, t(528) = 6.17, p < .001$) and affective engagement in online communication ($\beta = .53, t(528) = 14.57, p < .001$) positively predict sense to belong to online community. Regression equations obtained for the validation of the H₄ confirmed that affective engagement in online communication ($\beta = .19, t(528) = 4.50, p < .001$) and self-esteem positively predict number of friends/followers ($\beta = .12, t(528) = 2.86, p < .001$).

A path analysis was performed to check all direct and indirect effects of active social media use, self-esteem, and interaction between these variables on subjective well-being (see figure 1). Three criteria recommended by Schumacker & Lomax (2004) were considered to check the statistical significance of the proposed model: 1) non-statistically significant chi-square test; 2) the statistical significance of each parameter estimates; 3) the extent and direction of the parameter estimates to show that they are consistent with the substantive theory.

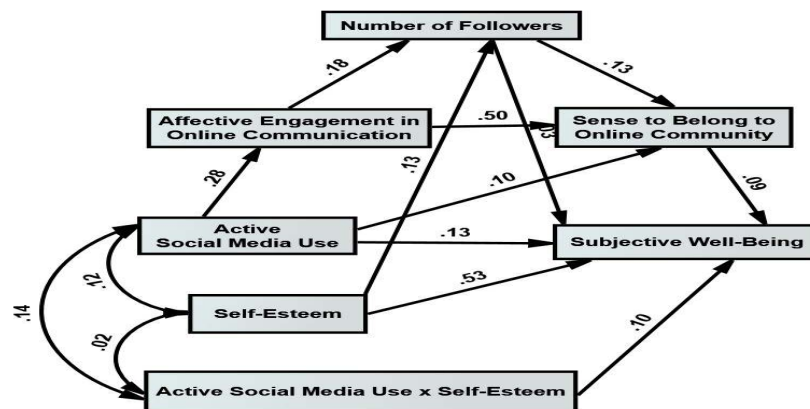


Figure no. 1. Mediation model of the relationship between active social media use and subjective well-being

The results confirmed the all criteria were met. The path model has very good fit to the data, $\chi^2 = 13.009$ with $p = 0.112$ and $df = 8, \chi^2/df < 2, RMSEA = .03$ [.00; .06], $pclose = .757$, $PGFI = .284$, $HOELTER = 631$ (cut off criteria >200). As shown in the table 3, all absolute and

comparative fit indices have values $>.95$. In addition, root mean square residual and standardized root mean square residual have values close to 0, indicating a very good fit of the proposed model to the data. As shown in figure 1, all paths have significant scores, except one, which is the relationship between number of friends/followers and subjective well-being.

Testing the mediation model specified in the H_5 proves evidence that standardized indirect effect of active social media use on sense to belong via affective engagement in online communication was statistically significant (see table 4). The direct effect was significant ($\beta = .104$; $[.035; .167]$; $p < .01$), thus suggesting partial mediation. The H_6 was confirmed, direct ($\beta = .496$; $[.432; .559]$; $p < .001$) and indirect effects of effects of affective engagement in online communication on sense to belong via number of friends being statistically significant.

	NFI	IFI	TLI	CFI	GFI	AGFI	RMSEA	RMR	SRMR
Fit indexes	.97	.99	.97	.99	.99	.97	.03	.03	.02
Confidence interval	[.00; .06]								

Table no. 3. Fit indices

As we mentioned above, number of friends has a predictive role on subjective well-being. When sense to belong was considered as mediator between number of friends/followers and subjective well-being, it turned out that the relationship between number of friends/followers and subjective well-being became insignificant. Thus, the H_7 was not validated. Sense to belong to online community did not have a mediating role in the relationship between number of friends/followers and subjective well-being.

IVs	Mediators	DVs	Estimate	Lower	Upper	<i>p</i>
Active SM use	Affective engagement	Sense to belong	.139	.103	.181	.001
Active SM use	Sense to belong	Subjective well-being	.016	.009	.258	.034
Affective engagement	Number of friends	Sense to belong	.022	.012	.038	.001

Table no. 4. Direct and indirect effects of active social media use on subjective well-being and sense to belong; direct and indirect effect of affective engagement on sense to belong - estimates, bootstrap confidence, and *p* value

Bias corrected percentile method certified the H_8 , active social media use having a direct ($\beta = .104$; $[.035; .167]$; $p < .01$) and indirect (as shown in table 4) effect on subjective well-being via sense to belong to online community.

V. DISCUSSION

This study aimed to analyze what degree and how active social media and self-esteem trait as moderator lead to subjective well-being. It was also investigated indirectly impact of active social media use on perceived quality of life measured by subjective well-being.

First, the results of this study show significant positive correlations between active social media use and: subjective well-being, affective engagement in online communication, sense to belong to online community, self-esteem, and number of friends/followers. These results are consistent with stimulation or increase hypothesis mentioned in the literature (Valkenburg et al., 2006), stressing that online communication can increase social interaction, extending bonding and bridging capital, which in turn contribute to the enhancing of well-being (Ellison et al., 2007).

Second, in light with aforementioned theory, our findings suggests the predictive role of active social media use, sense to belong to social media community, and self-esteem on subjective well-being. The significant betas validating the third hypothesis suggest that active social media use and affective engagement in online communication positively predict sense to belong to online

community. Moreover, number of friends has a mediating role in the relationship between affective in online communication engagement and sense to belong to online community. This is probably due that those people who actively use social platforms, initiating and maintaining contacts, and those who positively perceive their involvement in online communication, are more likely to extend their bridging capital or number of friends. In addition, they have a positive feeling of being a member that matters for the larger structure of online community.

Third, our results prove evidence for the predictive role of affective engagement in online communication and positive self-esteem on number of followers or friends. Those people who are aware by their self-worth and who positively invest online communication have more chances to have more followers. These results are complementary to the findings mentioned by Tzavela and Mavromati (2013), underlining that low number of friends on social network sites (less than 100) represents a sign of scarce social popularity or social attractiveness.

Fourth, the results certified the predictive role of number of friends/followers on subjective well-being; this direct effect disappears after taking into account sense to belong to online community, as shown in the path analysis. This result means the importance of feeling that one is part of the larger structure of online community for subjective well-being, but not just the number of followers. Sense to belong supposes that individual perceives that he matters to the group.

Fifth, the specified research model is fitted to the data, active social media use and self-esteem being moderators of subjective well-being. In addition, active social media use indirectly impacts subjective well-being via sense to belong to online community. The relationship between active social media use and sense to belong is mediated by the affective engagement in online communication. Findings prove evidence that number of friends has a predictive role for sense to belong to online community. This result parallels the findings obtained by Kim and Lee (2011). In addition, no significant effect on subjective well-being was obtained, after introducing the variable of sense to belong as mediator. As we explained above, subjective perception that individual matters to the larger structure of online community is more important for subjective well-being than social network size or number of followers.

The contribution of this research consists in extension of existing body of research on relationship between social media use and subjective well-being, taking into account moderation and mediation in a path-analysis model. The previous studies explored how SNS use impact self-esteem and/or psychological well-being. Fewer studies explored these relationships simultaneously (Elison et al., 2007). Moreover, in many of these was analyzed the effect of social media or Facebook use on self-esteem conceived as state, not as a trait. Our results prove that interaction between active social media use and positive self-esteem predicts subjective well-being. More than that, the current study highlights that active social media use indirectly impacts subjective well-being through sense to belong to online community. The results found that the relationship between affective engagements in social media and sense to belong to online community is mediated by number of followers.

Because this study is cross-sectional, the main aim being to assess prediction and not to establish a causal link, future research should consider examining longitudinal and experimental design to deepen understanding of the association between active social media use and subjective well-being.

CONCLUSIONS

Based on the assumption of the relationship between emotional experiences and subjective well-being, researchers became interested to take into account the social media use as instrument to measure users' subjective or psychological well-being. This study provides a complementary perspective on previous studies, highlighting how active social media can lead to have greater subjective well-being. The findings of current research show the importance of moderation role of self-esteem as trait and mediating role of sense to belong to online community in the relationship between active social media use and subjective well-being. The feeling to be a member who matter to online community depends not only on active social media use, but on affective engagement in online

communication and bridging capital or number of friends/followers. The latter is suggestive for social popularity, as Tzavela and Mavromati (2013) emphasized, but also for sense to belong to online community, which in turn has a predictive role on subjective well-being. Considering the widespread of online communication, more studies are necessary to comprehensive understanding of its consequences on users' quality of life.

Reference Text and Citations

- [1] Baumeister, Roy; Campbell, Jennifer; Krueger, Joachim; & Vohs, Kathleen. Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyle? *Psychological Science*, 4, 2003, pp. 1-44.
- [2] Berg, John & Derlaga, Valerian. *Themes in the study of self-disclosure*. In Valerian, Derlaga & John, Berg (Eds.), *Self-disclosure: Theory, research, and therapy*, Plenum Press, New York, 2013, pp. 1-8.
- [3] Best, Samuel & Krueger, Brian. Online Interactions and Social Capital. *Distinguishing Between New and Existing Ties*. *Social Science Computer Review*, 24(4), 2006, pp. 395-410.
- [4] Byrne, Barbara. *Structural Equations Modeling with EQS. Basic Concepts, Applications, and Programming*. Lawrence Erlbaum Associates Inc, New Jersey, 2006.
- [5] Burke, Moira; Marlow, Cameron, & Lento, Thomas. Social network activity and social well-being. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, Atlanta, USA, 2010, pp. 1909–1912.
- [6] Bhat, Sajad. Social Networking Sites and Mental health: A review. *International Journal of Advanced Educational Research*, 2(5), 2017, pp. 357-360.
- [7] Chan, Michael. Mobile phones and the good life: Examining the relationships among mobile use, social capital and subjective well-being. *New Media & Society*, 17(1), 2013, pp. 96-113.
- [8] Chen, Hsuan Ting & Li, Xueqing. *The contribution of mobile social media to social capital and psychological well-being: Examining the role of communicative use, friending and self-disclosure*. *Computers in Human Behavior*, 75, 2017, pp. 958-065.
- [9] Diener, Ed; Emmons, Robert; Larsen, Randy, & Griffin, Sharon. *The Satisfaction with Life Scale*. *Journal of Personality Assessment*, 49, 1985, pp. 71-75.
- [10] Gilchrist, Karen. *Instagram Most Likely to Cause Young People to Feel Depressed and Lonely Out of Major Social Apps*. CNBC, 2017, <https://www.cnbc.com/2017/05/19/instagram-most-likely-to-cause-young-people-to-feel-depressed-and-lonely-out-of-major-social-apps-study-says.html>.
- [11] Gravetter, Frederick, & Wallnau, Larry. *Essentials of statistics for the behavioural sciences*. Wadsworth, Cengage Learning, Belmont, CA, 2014.
- [12] Hu, Li-tze & Bentler, Peter. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria for new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*. 6, 1999, pp. 1-55.
- [13] Jin, Borae & Park, Namkee. Mobile voice communication and loneliness: Cell phone use and social skills deficit hypothesis. *New Media and Societ*, 15(7), 2013, <https://doi.org/10.1177%2F1461444812466715>, pp. 1094-1111.
- [14] Kaplan, Andreas & Haenlein, Michael. Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, 53, 2010, pp. 59-68.
- [15] Kim, Junghyun & Lee, Jong-Eun Roselyn. The Facebook Paths to Happiness: Effects of the Number of Facebook Friends and Self-Presentation on Subjective Well-Being. *Cyberpsychology, Behavior and Social Networking*, 14(6), 2011, pp. 359-364.
- [16] Lup, Katerina; Trub, Leora, & Rosenthal, Lisa. *Instagram #instasad?: Exploring associations among Instagram use, depressive symptoms, negative social comparison, and strangers followed*. *Cyberpsychology, Behavior and Social Networking*, 18(5), 2015, 247- 252.
- [17] Lyubomirsky, Sonia & Lepper, Heidi. *A Measure of Subjective Happiness: Preliminary Reliability and Construct Validation*. *Social Indicators Research*, 46, 1999, <https://doi.org/10.1023/A:1006824100041>, pp. 137–155.
- [18] Macmillan, Amanda. *Why Instagram Is the Worst Social Media for Mental Health*. *Time Health Mental Health Psychology*, 2017, <https://time.com/4793331/instagram-social-media-mental-health/>,
- [19] Pantic, Igor. *Online Social Networking and Mental Health*. *Cyber psychology, Behavior and Social Networking*. 2014, 652-657.
- [20] Rosenberg, Morris. *Society and the adolescent self-image*. University Press, Princeton, New Jersey, 1965.
- [21] Sherlock, Mary & Wagstaff, Danielle. *Exploring the relationship between frequency of Instagram use, exposure to idealised images, and psychological wellbeing in women*. *Psychology of Popular Media Culture*, in press, <https://www.researchgate.net/deref/http%3A%2F%2Fdx>.
- [22] Steinfield, Charles, Ellison, Nicole, & Lampe, Cliff. *Social Capital, Self-Esteem, and Use of Online Social Network Sites: A Longitudinal Analysis*. *Journal of Applied Developmental Psychology*, 29, 2008, pp. 434-445. <https://doi.org/10.1016/j.appdev.2008.07.002>
- [23] Tzavela, Eleini & Mavromati, Foteini. Online Social Networking in Adolescence: Associations with development, well-being and internet addictive behaviors. *International Journal of Child and Adolescence Health*, 6(4), 2013, pp. 411-420.
- [24] Valkenburg, Patti, Peter, Jochen, & Schouten, Alexander. *Friend Networking Sites and Their Relationship to Adolescents' Well-Being and Social Self-Esteem*. *Cyber Psychology & Behavior*, 2006, vol. 9, pp. 584-591.
- [25] Yang, Chia-chen. *Instagram Use, Loneliness, and Social Comparison Orientation: Interact and Browse on Social media, But Don't Compare*. *Cyber psychology & Behavior*, 2016, <https://www.ncbi.nlm.nih.gov/pubmed/27855266>, pp. 703 – 708.