





Psychopathological symptoms and risky behaviors, and the use of social networking sites by adolescents

Objawy psychopatologiczne i zachowania ryzykowne a korzystanie z portali społecznościowych przez młodzież

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Słowa kluczowe: portale społecznościowe, młodzież, objawy psychopatologiczne, zachowania ryzykowne.

Abstract

Introduction: Due to technological advancement, social networking sites have gained enormous popularity and are now present in all areas of life. The phenomenon of excessive use of the Internet and social networking sites, as well as the effect of pathological use of these media on the severity of neurotic symptoms and risky behaviors in children and adolescents has become the research area by numerous educators, sociologists, psychologists and psychiatrists.

Aim of the research: To analyze the relationship between the amount of time spent on social networking sites and reasons for using them, and the severity of psychopathological symptoms and the occurrence of risky behaviors in adolescents such as using psychoactive substances, disclosing their suicidal thoughts, plans and attempts.

Material and methods: The study included 246 subjects with social networking profiles and aged 16 to 19. The Symptom Checklist 'O' by Jerzy W. Aleksandrowicz and a self-constructed questionnaire were the research tools used in this study.

Results: Based on the results of the study, the intensity of psychopathological symptoms and reported risky behaviors were significantly correlated with the length of activity on a social networking site and the specific reasons why young people used it.

Conclusions: Longer time of using social networking sites by the surveyed adolescents correlates with self-harm and suicide attempts. Engaging in website activities for the purpose of bragging, attracting attention, or seeking recognition and acceptance is significantly correlated with the subjects' severe neurotic symptoms.

Streszczenie

Wprowadzenie: W związku z postępem technologicznym portale społecznościowe zyskały ogromną popularność i aktualnie obecne są w każdej dziedzinie życia. Zjawisko nadmiernego korzystania z Internetu i portali społecznościowych oraz wpływ patologicznego korzystania z tych mediów na nasilenie objawów nerwicowych i zachowań ryzykownych u dzieci i młodzieży stało się przedmiotem badań wielu pedagogów, socjologów, psychologów i psychiatrów.

Cel pracy: Analiza zależności między czasem pozostawania na portalu społecznościowym i motywacją do korzystania z niego a nasileniem objawów psychopatologicznych i występowaniem zachowań ryzykownych (przyjmowaniem środków psychoaktywnych, zgłaszaniem myśli, planów i prób samobójczych) u młodzieży.

Materiał i metody: Badaniem objęto grupę 246 osób w wieku od 16 do 19 lat, które miały profil na portalu społecznościowym. W pracy zastosowano metody badawcze: ankietę własnej konstrukcji oraz Kwestionariusz objawów nerwicowych „O” Aleksandrowicza.

Wyniki: Na podstawie wyników stwierdzono występowanie istotnych zależności między czasem aktywności na portalu społecznościowym oraz określonymi motywami korzystania z niego przez młodzież a nasileniem objawów psychopatologicznych i zgłaszanymi zachowaniami ryzykownymi.

Wnioski: Dłuższy czas korzystania z portali społecznościowych przez badaną młodzież łączy się z dokonywaniem samouszkodzeń i prób samobójczych. Podejmowanie aktywności na portalu w celu pochwalenia się, zwrócenia na siebie uwagi, uzyskania uznania, akceptacji łączy się istotnie z nasilonymi objawami nerwicowymi u badanych.

Introduction

Social networking sites (SNS) are online platforms that allow users to connect with one another in order to establish and maintain interpersonal relationships [1]. Due to technological advancement, social networking sites have gained enormous popularity and are currently present in all areas of life. According to Dixon, at least one of the platforms, such as Facebook, Instagram, WhatsApp, or Messenger, has been used by approximately about 3.51 billion people. In the second quarter of 2021, 2.89 billion active users, defined as those who logged in at least once per month, were actively using Facebook [2]. Similarly, Instagram has become a popular social networking site, primarily used by young adults [3]. In Poland, SNS are used by approximately 50% of the population, and the number of users of social media rises yearly [4]. In 2020, the percentage of Polish women and men using social media stood at approximately 66%, which represents an increase of nearly 5%, compared to 2016 [5]. In January 2020, in Poland there were 19 million users of social networking sites [4], and in June 2021, there were 21.82 million active users of Facebook, with over 25% of them being people between the ages 25 and 34 [6].

Numerous experts [7] who deal with the mental health of children and adolescents have researched the relationship between the use of the Internet and social networking sites and the occurrence of psychopathological symptoms, such as depression [8–12], anxiety [13, 14], obsessive-compulsive disorder [15–17], eating disorders [18], suicidal thoughts [19–22], suicide attempts [23], and self-harm, as well as the use of psychoactive substances [24].

According to the literature's findings, there are significant dependencies between problematic social networking site use and young adults' and adolescents' high levels of stress [25] as well as depressive symptoms [8–11]. According to Frison *et al.* [26], there are positive correlations between the volume of Instagram posts and depressed mood in children and teenagers. Yoon *et al.* [27] found that a longer period of time and more frequent use of social networking sites were associated with increased depressive symptoms. Frison *et al.* [26] believe that depressive symptoms are a predictor of more frequent active Facebook use. According to Seabrook *et al.* [28], negative interpersonal interactions and comparing oneself to others on social networking sites may aggravate the symptoms of anxiety and depression. According to Baker and Algorta [29], social network users' exposure to content may have a greater influence on the occurrence and severity of depressive symptoms than the frequency of their visits to social networking sites, or length of activity. Some authors hypothesize that the study subjects' declining sleep quality, which is connected to their time spent on social networking sites, is the direct cause of the increase in risk of de-

veloping depressive symptoms. Similar to this, Woods and Scott [30] believe that adolescents' use of SNS at night contributes to sleep disorders. Raudsepp [31] reported associations of both problematic use of social media and sleep disorders with the severity of depression symptoms. According to Berger *et al.* [32], sleep disorders in teenagers may worsen their cognitive functioning and interfere with their ability to regulate their emotions, thus contributing to the severity of depression symptoms. In contrast to people who use social networking sites continuously, Tromholt [33] found that the people who stopped using SNS for a week reported a higher level of life satisfaction.

The findings of the study by Aalbers *et al.* [34] do not support the occurrence of any significant relationships between symptoms of depression and the duration of social media use. According to some authors, people with symptoms of mental health disorders may benefit from using social media. Scherr and Brunet [35] point out that young adults with a natural inclination to depression used Facebook to express their current thoughts and emotions. Thus, SNS provided them with a community they could turn to for support during episodes of depression. Similar findings were reported by Seabrook *et al.* [28], who pointed to the relationship between the ability to establish positive interactions, get social support and maintain interpersonal bonds on a social networking site, and a lower level of depressive and anxiety symptoms, no sense of loneliness, higher self-esteem and higher life satisfaction.

Thorisdottir *et al.* [13] point to significant correlations between adolescents' excessive use of social media and lowering their anxiety and depression symptoms. Severe anxiety symptoms are linked with the use of SNS at night, spending more time on a website [30], and checking the activity on social media more frequently [36]. Muzaffar *et al.* [37] believe that increased Facebook use by adolescents is positively correlated with their increased symptoms of generalized anxiety but is unrelated to their increased symptoms of depression and a sense of suffering. Vannucci *et al.* [38] observed that spending more time on social media significantly affects the severity of anxiety. In contrast to the aforementioned authors, Prizant-Passal *et al.* [39] found no significant correlation between social anxiety symptoms and the total amount of time spent online and using instant messaging.

Significant correlations between inappropriate, excessive use of SNS and the occurrence and severity of obsessive-compulsive disorder (OCD) were described in the study by James *et al.* [40]. Other authors came to similar research-based conclusions [15, 41]. O'Reilly [17] emphasized that frequent use of social networking sites may cause younger users to develop compulsive behaviors. Tan *et al.* [42] believe that social media users with obsessive-compulsive disorder may be exposed to unfavorable experiences brought on by misinformation or social comparisons. How-

ever, Qudrat Abas and Jaff [43] claim that social media could be a potentially effective therapeutic tool used in treating OCD symptoms. Stevens *et al.* [44] found no relationship between the frequency and amount of time spent on Facebook, and obsessive-compulsive personality traits. However, they emphasize that individuals with anankastic personality traits may use Facebook more frequently, primarily to lessen their level of stress. Moreover, Eichenberg and Schott [45] and van den Heuvel *et al.* [46] note that accessing health-related websites may induce symptoms of hypochondriacal disorders, amplify them, and lead to more frequent use of medical services.

Griffiths *et al.* [47] describe the occurrence of strong correlations between the use of SNS, social media platforms that primarily focus on images, such as Instagram, and the feelings of body dissatisfaction and eating disorder symptoms. Similar to this, Turner and Lefevre [48] claimed that more frequent use of Instagram results in an increased risk of engaging in unhealthy eating habits among its users.

Some authors claim that problematic, excessive use of social networking sites raises the risk of both males and females attempting suicide [19], engaging in self-harm, and having suicidal thoughts [20–22, 49]. According to Memon *et al.* [20], adolescents who spend more time on online social networks are more likely to consider self-harm and suicide. According to Coyne *et al.* [50], there is a relationship between women's increased use of social media and longer average usage time and their suicide attempts. Macrynika *et al.* [51] also discuss the connection between the frequency of social media and smartphone use and suicidal thoughts. Soron and Shariful [52] observed that Facebook users increasingly post about suicide and even broadcast suicide attempts live. People who want to commit suicide using social media are more likely to pay attention to content related to suicide. They comment or post information about suicide on the website [22]. Similarly, people who self-harm are more likely to use social media websites. Young people who self-harm communicate with one another via SNS to share information related to risky behaviors and information about new ways of self-harm. They support one another in engaging in these destructive behaviors or encourage one another to do so [53].

The authors Cavazos-Rehg *et al.* and Willoughby *et al.* [54, 55] emphasize that social networking sites have grown to become one of the areas where the use of psychoactive substances is increasingly encouraged. Viewing content regarding psychoactive substances on social media platforms may affect changes in social norms and the acceptance of behaviors related to alcohol and drug use [56]. According to Gutierrez and Cooper [24], time spent on social networking sites is significantly correlated with increased

frequency of alcohol and synthetic cannabinoid use, and, additionally, in males, it is positively correlated with increased frequency of marijuana use. Kelleghan *et al.* [57] claim that adolescents who regularly use social media are more likely to start using tobacco or cannabis when they are younger. Systematic alcohol use is one of the predictors of problematic use of SNS, according to research by Tomczyk *et al.* [58]. Based on their research, Odofin and Igabari [59] found statistically significant correlations between high school students' excessive use of social media and their use of psychoactive substances. Similarly, Buja *et al.* [60] report on the relationship between problematic SNS use and the likelihood of using psychoactive substances (smoking, drinking alcohol, and energy drinks).

Aim of the research

The aim of the work was to analyze the relationships between the amount of time spent on social networking sites and the reasons for using them, and the intensity of psychopathological symptoms and the occurrence of risky behaviors (using psychoactive substances, disclosing suicidal thoughts, plans and attempts) in adolescents.

Material and methods

The study included 246 lower secondary and secondary school students (171 females and 75 males) aged 16 to 19 who reported having profiles on social networking sites. The average age of the subjects was 16.5 years (SD = 1.48). 132 people came from the city and 159 from the countryside. 59 girls and 44 boys attended junior high school, and 129 girls and 59 boys attended high school. 247 people grew up in a complete family, 35 in a single-parent family, and 8 people in a reconstituted family. Of the parents of the surveyed students, 42 fathers and 74 mothers had higher education, while 126 mothers and 116 fathers had secondary education. 66 mothers and 102 fathers had vocational education, and 19 mothers and 18 fathers had primary education. 51 students smoked cigarettes (of these 34 persons aged 14 to 17), 254 people drank alcohol (of these 177 students aged 14 to 17), and 34 students used drugs (marijuana: 31; amphetamine: 5; sedatives: 10). In the entire study group, 105 people disclosed suicidal thoughts, 70 had suicidal tendencies, and 12 people had attempted suicide. 73 people reported self-harm.

The following research methods were used in the work:

1. A self-created questionnaire was used to gather data on sociodemographic characteristics and information about having a profile on a social networking site (reason for use, daily usage time of a social networking site, activity on SNS demonstrated by the surveyed), and risky behaviors (thoughts, plans,

suicide attempts, self-harm, and use of psychoactive substances).

2. Aleksandrowicz's Symptom Checklist 'O' was developed between 1975 and 1978 and is a modified version of SCL-90-R. The descriptive nature of the Symptom Checklist 'O' makes it possible to fully and comprehensively describe neurotic disorders. The Symptom Checklist version used in this work consists of 138 closed questions, and the responses to these questions provide information about both the occurrence and severity of disorders. There were four options for each answer: 0 – discomfort did not occur during the 7 days preceding the examination; a – it occurred and was slightly bothersome; b – it occurred and was extremely bothersome; c – it occurred and was very bothersome. The index of the overall severity of disorders is determined by applying appropriate weights: 0 points, response a = 4, b = 5, c = 7. The isolated variables were put on the following scales: 1 – phobic disorders, 2 – other anxiety disorders, 3 – obsessive-compulsive disorders, 4 – conversions, 5 – autonomic disorders of the heart and cardiovascular system, 6 – somatic symptom disorders, 7 – hypochondriac disorders, 8 – neurasthenia, 9 – depersonalization-derealization syndrome, 10 – mixed personality disorders (mainly with elements of avoidant and dependent personality), 11 – mixed personality disorders with a predominance of impulsive and histrionic features, 12 – nonorganic sleep disorders, 13 – sexual dysfunctions, and 14 – dysthymia. Scales 1, 2, 3, 5, 6, 7, 8, 9 correspond to neurotic disorders listed in the ICD-10. Scale 4 primarily includes conversion and pain symptoms. Scales 10 and 11 are used to measure personality disorders, scales 12 and 13 are used to measure behavioral disorders, and scale 14 measures depressive (dysthymic) disorders [61, 62].

Statistical analysis

The obtained scores were subjected to statistical analysis using Statistica 10.0PL software. The conformity of the distribution of individual variables within groups with the normal distribution was assessed using the Kolmogorov-Smirnov test with the Lilliefors correction. Relationships between nominal and interval variables were calculated using point-biserial correlation, and relationships between two interval variables were computed using Pearson's *r* correlation. A significance level of 0.05 was accepted as statistically significant.

Results

In the first stage, a dependence was analyzed between the amount of time spent on social networking sites and the adolescents' motivation to use them, and the severity of neurotic symptoms and reported risky behaviors such as using psychoactive drugs and having suicidal thoughts, plans, or attempts. The severity

of neurotic symptoms was evaluated using Aleksandrowicz's Symptom Checklist.

The findings from the entire study group show statistically significant correlations between:

- longer time of SNS use, and impulsive and histrionic personality traits ($r = 0.18$; $p < 0.01$) and self-harm ($r = 0.16$; $p < 0.05$),
- using a social networking site to “brag” and severe symptoms of dysthymia ($r = 0.17$; $p < 0.05$) and amphetamine use ($r = 0.19$; $p < 0.01$),
- using SNS to “post vacation photos” and severe obsessive-compulsive symptoms ($r = 0.17$; $p < 0.05$), impulsiveness and histrionics ($r = 0.19$; $p < 0.01$), as well as binge drinking ($r = 0.21$; $p < 0.001$), self-harm and planning suicide ($r = 0.23$; $p < 0.01$),
- using a social networking site to “post family photos” and a bigger number of suicide attempts ($r = 0.18$; $p < 0.01$).

After that, correlation coefficients between the amount of time spent on social networking sites and the reasons behind using them, as well as neurotic symptoms and the occurrence of risky behaviors, were calculated while accounting for the participants' gender distribution. In the group of surveyed women, statistically significant correlations between the following variables were found:

- longer time of using a social networking site and self-harm ($r = 0.16$; $p < 0.05$),
- using SNS to “brag” and severe somatization symptoms ($r = 0.19$; $p < 0.05$), neurasthenia ($r = 0.19$; $p < 0.05$), derealization-depersonalization syndrome ($r = 0.18$; $p < 0.05$), dysthymia ($r = 0.18$; $p < 0.05$), and avoidant and dependent personality traits ($r = 0.25$; $p < 0.01$),
- using a social networking site to “post vacation photos” and reporting the occurrence of suicidal thoughts and tendencies ($r = 0.16$; $p < 0.05$),
- having a profile on a social networking site “because it is trendy” and increased symptoms of neurasthenia ($r = 0.18$; $p < 0.05$),
- using SNS to “stay in touch with friends” and low severity of neurotic symptoms: obsessive-compulsive ($r = -0.18$; $p < 0.05$), neurasthenia ($r = -0.26$; $p < 0.001$), depersonalization-derealization ($r = -0.21$; $p < 0.01$), and a low level of avoidant and dependent personality traits ($r = -0.18$; $p < 0.001$),
- using a social networking site to “get information about friends” and fewer suicide attempts ($r = -0.23$; $p < 0.05$).

In the final stage of the analyses, correlation coefficients were calculated between the time of using the portal and the reasons for using it, and the reported psychopathological symptoms and risky behaviors in the group of surveyed males. Statistically significant correlations were found between the variables:

- longer time spent using social networking sites by the surveyed men and more frequent suicide attempts ($r = 0.51$; $p < 0.001$),

- using a social networking site to “brag” and using amphetamine ($r = 0.70$; $p < 0.001$),
- using social media to “post vacation photos” and having severe neurotic symptoms, such as obsessive-compulsive disorder ($r = 0.26$; $p < 0.05$), conversion ($r = 0.26$; $p < 0.05$), somatization ($r = 0.26$; $p < 0.05$), severe histrionic personality traits and impulsive subtype ($r = 0.25$; $p < 0.05$), as well as marijuana use ($r = 0.25$; $p < 0.05$),
- having a profile on a social networking site “because it is trendy” and severe hypochondriac symptoms ($r = 0.24$; $p < 0.05$),
- using a social networking site to “comment on other people’s posts” and severe autonomic symptoms involving the heart and cardiovascular system ($r = 0.25$; $p < 0.05$),
- using a social networking site to “get information about friends” and a low level of anxiety symptoms (phobia type) ($r = -0.27$; $p < 0.05$), lack of reporting suicidal thoughts ($r = -0.32$; $p < 0.01$) and self-harm ($r = -0.25$; $p < 0.05$),
- using a social networking site to “contact friends” and not using psychoactive substances ($r = -0.27$; $p < 0.05$).

Discussion

The findings of statistical analyses indicate significant correlations between longer use of social networking sites and self-aggressive behaviors exhibited by adolescents. Significant correlations were also found between activities on social networking sites in order to: “brag”, “post vacation photos”, “post family photos”, “comment on other people’s posts”, or “adapt to the current trend”, and severe psychopathological (neurotic) symptoms and risky behavior in which the subjects get engaged. Interesting data were obtained after dividing the adolescents who participated in the survey by gender. Use of a social networking site (SNS) for the purpose of “bragging” in the group of women correlates with increased neurotic symptoms (depressive, somatization, neurasthenia, derealization-depersonalization syndrome), as well as avoidant and dependent personality traits, and, in the group of men, bragging on SNS correlates with the use of drugs. Using SNS to “post holiday photos”, in the group of women is correlated with reporting the occurrence of suicidal thoughts and tendencies, and, in the group of men, with severe neurotic symptoms (obsessive-compulsive, conversion, somatization), and severe histrionic personality traits and impulsive subtype, as well as the use of marijuana. Both in the group of female and male adolescents, significant correlations were found between using a social networking site to adapt to a trend and comment on other people’s posts, and severe neurotic symptoms (neurasthenia, hypochondriasis). Moreover, significant correlations were found between a longer period of using social networking sites and self-harm

in the group of women, and more suicide attempts in the group of men.

The findings presented above are consistent with the results of research by other authors, who indicate significant relationships between excessive use of SNS by adolescents and reported depressive symptoms [28, 63], anxiety [13, 30, 36, 37], obsessive-compulsive [15–17, 40], the use of psychoactive substances [24, 55, 57, 59, 60], and the occurrence of self-aggressive behavior [19, 21, 49–51]. The findings of this study support the views of the authors that there are strong correlations between using social networking sites for a longer period of time and the occurrence of suicidal thoughts, tendencies, attempts, and self-harm [21, 50, 64, 65].

The findings of the study show significant correlations between using SNS to “stay in touch with friends” and having low levels of neurotic symptoms in the group of surveyed women and not using psychoactive substances in the group of surveyed men. Using a social networking site to “get information about friends” correlates with fewer suicide attempts in the group of surveyed women and with a low level of anxiety symptoms and not reporting suicidal thoughts in the group of men.

According to some authors, social media may be advantageous for people who exhibit symptoms of mental health disorders. Scherr and Brunet believe that Facebook makes it easier for young adults with depressive symptoms to express their current thoughts and emotions and to have a support network to whom they could turn for help during episodes of depression [35]. Similarly, activity on a social networking site as noted by Seabrook *et al.* [28] lowers the feeling of loneliness, as well as depressive and anxiety symptoms, is associated with higher self-esteem, life satisfaction, and support, and also facilitates creating and sustaining healthy interpersonal relationships.

The hypothesis could be formulated that if adolescents spend more time using social networking sites to satisfy emotional needs such as conformity, attracting attention, self-disclosure (exhibitionism), increasing self-esteem, receiving praise, recognition, and appreciation from others, this type of activity may be a risk factor for neurotic symptoms and risky behaviors. Additionally, it is possible that adolescents who exhibit neurotic symptoms or risky behavior may excessively use social networking sites to get help with neurotic disorders, as well as encouragement for their activities, including destructive ones. As noted by Memon *et al.* and Coyne *et al.* [21, 24, 50], adolescents with suicidal thoughts and tendencies who self-harm may look for encouragement for these behaviors on social networking sites, and people who use psychoactive substances may find information facilitating access to them and watch advertisements encouraging them to use these substances.

At the same time, the conducted research suggests that a shorter amount of time spent on social networking sites along with using them in order to

satisfy the need for affiliation, maintaining friendly interpersonal relationships, and learning more about friends when it is not possible to meet them in person, may be a protective factor against the development of neurotic symptoms and risky behavior.

In conclusion, it should be emphasized that short-term use of social networking sites to stay in touch with friends and learn more about them does not pose a threat for the children and adolescents whose emotional needs are met in the family and who are able to properly establish social relationships. When used extensively, it will turn into a source of information promoting risky behavior and will become the primary means of meeting emotional needs such as gaining acceptance, self-esteem, attention, and a sense of belonging. The aforementioned aspects of using SNS should be considered by parents, educators, school psychologists, and therapists working with children and adolescents who use the Internet excessively and pathologically.

The findings presented in this article, as well as the conclusions and hypotheses drawn from them, are consistent with, and extend, previous research conducted by Pawłowska *et al.* [66, 67]. In previous publications, the authors discussed environmental, family-related, and personality factors which are connected to adolescents' motivation to use social networking sites and the amount of time spent doing so [66, 67]. The findings of this study provide information on the relationship between adolescents' motivation and how much time they spent on social networking sites, and their psychopathological symptoms and risky behaviors. The authors' findings can be applied in designing preventative actions intended to stop adolescents' excessive use of SNS. The research findings may also help in the treatment of young people who use social networking sites and the Internet pathologically by emphasizing the importance of motivations and emotional needs that can be wrongfully and negatively satisfied through these media.

Conclusions

The research findings from this study were used to develop the following conclusions:

1. Adolescents who participated in the study use social networking sites for longer periods of time, which is associated with self-harm and suicide attempts.
2. Engaging in activities on SNS with the intent to brag, attract attention, win recognition, or gain acceptance is significantly correlated with increased occurrence of neurotic symptoms in the surveyed adolescents.

Conflict of interest

The authors declare no conflict of interest.

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