

Article

Correlation between Suicidal Ideation and Addiction to Various Social Media Platforms in a Sample of Young Adults: The Benefits of Physical Activity

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Abstract: The rise in suicide death rates has become a major public health concern, which has led to increased addiction to internet and social media platforms. Despite the limited research available on the relationship between suicidal ideation and addiction to social media such as Instagram and TikTok, this study aims to examine this connection. The study design is cross-sectional, quantitative, comparative, and correlational, with a quasi-experimental approach. The sample includes 315 young adults aged 20 to 30 who were surveyed through the administration of the Suicidal Ideation Questionnaire (SIQ) and the Social Media Disorder Scale-Short Form (SMDS-SF) surveys. The results showed differences in addiction levels based on the type of social media, specifically between TikTok and other social media platforms. The study found that female participants who engage in physical activity (PA) four times a week had lower levels of suicidal ideation than those who did not; there were no differences compared to male participants. This suggests that PA may be a potential strategy for preventing and reducing suicide-related phenomena. The results also indicate that addiction to social media was a statistically significant predictor of suicidal ideation, after controlling for gender and PA.

Keywords: young adults; social media addiction; suicidal ideation; physical activity



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1. Introduction

The rise of the internet was one of the most significant changes in civilization during the 20th century, according to Błachnio and Przepiorka [1]. This rapidly diffused technology offers faster communication and information sharing, as well as attractive applications [2]. These platforms are a prominent and constantly evolving aspect of the digital world and are heavily adopted by young people and other users alike [3]. According to Statistics Portugal-SP [4], there is a marked decline in internet usage rates as age increases, with nearly 100% of usage seen among young adults aged 16 to 34 years. In Portugal, access to the internet is available to roughly 76.2% of residents aged 16 to 74, and among these individuals, 80.2% use it to access social media platforms. This trend has been on the rise since 2011, when only 57% used the internet for this purpose [4]. The growth in social media platform usage can be attributed to the increase in the number of available platforms. Adolescents seem to be more susceptible to developing an addiction or dependence on these platforms than young adults, as they are more easily able to adapt to new technologies [5] and use more social media platforms [6]. Despite this, the trend has been linked to self-destructive behaviours [7]. Young adults spend more time on social media than adolescents [6], but are less susceptible to addiction or dependence.

The impact of social media usage on the well-being of young people is complex and multifaceted. On the positive side, social media can help reduce feelings of loneliness and isolation [8] and provide support from friends and family [8–10]. Additionally, social media can offer access to positive and uplifting content [11]. Nevertheless, social media usage also has well-documented negative effects, such as difficulties regulating frequency of use, stress related to social interactions and feedback (e.g., the number of likes), and exposure to cyberbullying and aggression [11]. Using social media as a way to alleviate boredom is a common practice among young adults, but it is associated with problematic use, weakened interpersonal relationships, increased anxiety, financial stress, and delinquent behaviour [12].

Although social media can offer helpful resources and support to young adults dealing with suicidal ideation and self-harm [13], it is crucial to investigate the connection between social media use and its effects on exposure to certain content. For instance, the active public use of social media and exposure to suicide-related content needs to be scrutinized in terms of its potential impact on the well-being of young adults.

1.1. Effects of Using Social Media and Exposure to Content

A recent literature review conducted by Macrynika et al. [14] confirms the correlation between social media usage frequency, exposure to suicide-related content, smartphone addiction, and suicidal ideation in young adults. These findings are further supported by Arendt et al. [15], who found that young adults with higher exposure to self-harm content are more likely to engage in self-harm, suicidal ideation, or commit suicide. A study by Kingsbury et al. [16] found links between social media usage, suicidal behaviour, and non-suicidal self-injury among university students aged 18 to 25. The authors concluded that active public social use (e.g., posting a photo on a feed) increased the likelihood of non-suicidal self-injury thoughts and behaviours and suicide attempts, while active private social use (e.g., communicating with distant friends and family), passive non-social use (e.g., reading news), and active non-social use (e.g., using social media for studying) decreased the likelihood of self-injury and suicidal behaviour.

Although research has found a correlation between exposure to suicide-related content on social media and suicide risk, it remains unclear whether exposure causes risk or if those who are already predisposed are drawn to such content [14]. Weinstein et al. [11] found that certain online content, such as images of self-harm, can trigger suicidal ideation in young people who are hospitalized for severe suicidal ideation or a suicide attempt. Furthermore, young adults who have attempted suicide are more likely to engage in suicide-related behaviour on social media, such as commenting on or sharing news about suicide or discussing personal plans to commit suicide [17]. Keating and Rudd-Arieta [18] also suggest that social media use is linked to the normalization and glorification of suicide.

Research suggests that while there is a protective effect of using social media against suicidal behaviour and thoughts [10], there is no direct relationship between social media use and suicidal ideation. Rather, factors such as anhedonia, social isolation, and spending less time on social media are associated with the risk of suicidal ideation [10,19]. Berryman et al. [9] further support this idea by asserting that the amount of time spent on social media is not a reliable predictor of mental health problems, including suicidal ideation. Instead, the manner in which social media are used is more critical in terms of mental health concerns.

Choi and Noh [8] suggest that social media use is positively linked to psychological well-being and social support, while negatively linked to favourable attitudes towards suicide. Unruh-Dawes et al. [20] reported a significant difference in suicidal ideation rates between Instagram and Twitter users, with Instagram users having a significantly lower rate.

Although research suggests a positive correlation between social media use and the mental health of young people, interpreting these findings requires caution due to variations in the instruments used to measure social media use across studies, which may only assess time spent on social media platforms. Additionally, studies examining the motivations

and types of social media use yield varying results. Yet, as noted by Petalas et al. [6], it is important to recognize that correlations between different measures of social media use are generally low, indicating that different instruments may measure different aspects of the construct.

1.2. Social Media Addiction and Suicidal Ideation

The study of internet addiction is a recent but growing area in the literature. Research on this topic faces several challenges, including the use of “addiction” as a synonym for problematic internet use [21,22]. To address this issue, the concept of “problematic Internet use” has emerged to define the negative impact of the internet on individuals’ lives, including personal and professional consequences. This is characterised by a distinct pattern of internet-related cognitions and maladaptive behaviours, which may lead individuals to prioritise online interactions over in-person social relationships [21,23]. Fernandes et al. [21] (p. 3) note that “addiction to the Internet seems to be related to specific uses of some Internet features and not to its generalised use”, such as addiction to social media. Although not recognized as an addiction disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM) and not falling within the diagnostic criteria, “Internet addiction” is commonly used to describe an individual’s compulsive and continuous desire to use the internet [24]. Jasso-Medrano and López-Rosales [25] state that addiction to social media is considered a subtype of internet addiction. Thus, the term “Internet addiction” should be abandoned in favour of the broader concept of “cyber addictions” [21], (p. 3).

The scientific community remains concerned about the potential detrimental effects of social media addiction on the mental health of young individuals, specifically with regard to suicidal ideation. Researchers have noted inconsistent findings regarding this issue. A study conducted by Donnelly and Kuss [26] on a sample of 103 young adults reported that addiction to social media, particularly Instagram, was a significant predictor of depression. In contrast, other social media such as Facebook, Twitter, and Snapchat exhibited a weaker association between addiction to social media and depression. Similarly, Jeri-Yabar et al. [5] found a correlation between dependence on social media and depressive symptoms, with Twitter users having a higher risk of depression compared to users of other platforms such as Instagram and Facebook.

Jasso-Medrano and López-Rosales [25] reported a positive correlation between the addictive use of social media and suicidal ideation in young adults. However, their structural equation model revealed a negative association between addiction to social media and suicidal ideation when accounting for depression. This finding implies that while depression and suicidal ideation are positively linked, addictive behaviour cannot be entirely explained by suicidal ideation alone.

Conversely, Brailovskaia et al. [27] conducted a longitudinal study that indicated addictive use of Facebook can predict suicidal behaviour, and positive mental health can serve as a protective factor, potentially preventing suicidal behaviour.

1.3. Frequency of Physical Activity and Effects on Suicidal Ideation

Although regular physical activity is well known for its health benefits, limited research has been conducted on its impact on suicidal ideation in young adults. Nevertheless, some studies show promising results. For instance, Grasdalsmoen et al. [28] found that university students who engaged in less physical activity included a significant proportion of individuals with a history of suicidal behaviour. This association was particularly evident in women in relation to the frequency of physical activity. Those who did not exercise were 2 to 2.5 times more likely to have a history of self-harm and suicidal behaviour than those who exercised almost daily. Similarly, Kim et al. [29] suggest that moderate-intensity physical activities requiring increased breathing, such as cycling at a regular pace or walking for at least 30 min a day, have a beneficial effect in reducing suicidal ideation. In their study, women with a moderate level of physical activity had a significantly lower likelihood of suicidal ideation. However, for men, there were no significant associations

between the reduction in suicidal ideation and the intensity level (low, moderate, and high) of physical activity.

Studies generally support the theory that physical activity, particularly in women [30,31], decreases the likelihood of suicidal ideation. However, further investigations are warranted in this young adult age group [32].

The scarcity and inconsistency of research on the connection between social media addiction and suicidal ideation among young adults underscore the significance of this study. Its primary aim is to investigate this association, and to accomplish this objective, the study will pursue the following specific goals: (1) Profile the sample according to age, gender, educational background, and occupational status; (2) Determine the frequency of social media usage for each platform under examination; (3) Calculate the incidence of suicidal ideation among study participants; (4) Identify the prevalence of addictive social media usage in the sample; (5) Compare addiction levels between different social media; (6) Compare levels of suicidal ideation across different social media; (7) Evaluate the correlation between physical activity and suicidal ideation by gender; (8) Determine the predictive power of social media addiction, physical activity frequency, and gender on suicidal ideation.

This study offers original contributions in several respects. Firstly, it compares different social media, whereas other studies have typically focused on only one platform or the most frequently used one by participants. Secondly, by investigating the correlation between physical activity frequency and suicidal ideation by gender, the study has the potential to provide valuable insights for psychological intervention with affected individuals.

2. Methodology

This is a cross-sectional, quantitative, comparative, and correlational study with a quasi-experimental design [33]. The initial sample was intentionally selected in a non-probabilistic random manner, consisting of 349 individuals. Of these, 34 individuals (9.7%) did not meet the pre-defined requirements and were excluded, with two not having Portuguese nationality, 27 being under 20 years old, and five being over 30 years old. The final sample included 315 Portuguese nationals between the ages of 20 and 30 who are users of social media, with a mean age of 21.8 years ($SD = 2.4$). Among the participants, 232 were female (73.6%), 79 were male (25.1%), and 4 chose not to reveal their gender (1.3%). Most participants had completed only secondary education ($n = 177$, 56.2%), while the next highest group were higher education graduates ($n = 133$, 42.2%), and the smallest cohort had completed only the 9th year of schooling ($n = 5$, 1.6%). In terms of professional status, 230 were students (73.0%), 61 were workers (19.4%), 5 were self-employed (1.6%), 16 were on maternity leave (5.1%), and 3 were student workers (1.0%). Finally, the frequency of physical activity reported by participants was as follows: 115 reported practising once or twice a week (36.5%), 109 did not practise even once a week (34.6%), 56 practised three times a week (17.8%), and 35 practised four or more times a week (11.1%).

2.1. Instruments

Socio-demographic questionnaire: the aim of this was to collect data on participants' age, nationality, gender, academic qualifications, professional situation, most used social media, and frequency of weekly physical activity.

Social Media Disorder Scale-Short Form (SMDS-SF): this was used to measure addiction to social media. Costa et al. [34] validated and adapted the SMDS-SF for the Portuguese population using a sample of young people aged between 20 and 30 years. Prior to this, Eijnden et al. [35] had developed Social Media Disorder Scale for adolescents aged 10 to 17 years. The SMDS-SF scale has nine items that correspond to dependency dimensions: (1) Concern—"Did you regularly realise that you couldn't think of anything other than the moment when you could use social media again?"; (2) Tolerance—"Did you often feel dissatisfied because you wanted to spend more time on social media?"; (3) Abstinence—"Did you often feel bad because you couldn't use social media?"; (4) Persistence—"Did you try

to spend less time on social media, but failed?"; (5) Avoidance—"Did you regularly neglect other activities (such as hobbies or sports) because you preferred to use social media?"; (6) Problems—"Did you often have arguments with other people because of your use of social media?"; (7) Lying—"Did you regularly lie to parents or friends about the amount of time you spent on social media?"; (8) Displacement—"Did you frequently use social media to avoid thinking about unpleasant things?"; (9) Conflict—"Have you had serious conflicts with parents and siblings because of your use of social media?".

The SMDS-SF scale measures addiction to social media using dichotomous (yes/no) responses that refer to behaviour during the previous year. Each "yes" answer receives a score of 1 point, with a maximum scale score of 9 points. A total score of 5 or higher is considered the criterion for dependence on social media, as established by Eijnden et al. [35]. The validation study by Costa et al. [34] reported strong internal consistency for the scale, with a Cronbach's alpha value of 0.87 and item-total correlation values ranging from 0.42 to 0.79.

Suicidal Ideation Questionnaire (SIQ): The Suicidal Ideation Questionnaire (SIQ) was used to assess the severity of suicidal ideation in adolescents and adults. Initially developed by Reynolds [36], the questionnaire was translated and adapted for the Portuguese population by Ferreira and Castela [37]. The SIQ is a self-report instrument consisting of 30 items, answered on a Likert-type scale with seven response alternatives, ranging from 0 (never had this thought) to 6 (almost every day). The total score on the scale is obtained by summing the scores of the 30 items, and the result can range from 0 to 180 [37].

However, if a participant scores 41 or more, they should be referred for psychological evaluation due to potential development of psychopathology and risk of suicide [36]. In this follow-up, any participant who marks a score of 5 or 6 in three or more items should be considered to be in an alarming situation, regardless of their total score [36]. Ferreira and Castela [37] found that a higher frequency of suicidal ideation is associated with a higher score on the assessment. The assessment demonstrated strong internal consistency, with a Cronbach's alpha value of 0.96 [37]. Item-total correlation values ranged from 0.21 to 0.86, but most were between 0.70 and 0.80 [37].

2.2. Procedures

We recruited participants for the study by sharing links on social media (Instagram, Facebook, Twitter, WhatsApp, and Discord) that provided access to the study's socio-demographic questionnaires (SMDS-SF and SIQ). To ensure adherence to ethical and deontological principles, we guaranteed the anonymity and confidentiality of the participants' data and obtained their informed consent. Data collection occurred between March and April of 2022. Given that the study addresses the sensitive topic of suicide, we included support lines (SOS Estudante, Centro SOS-Voz Amiga, Conversa Amiga and Telefone da Amizade) at the beginning and end of the questionnaires to assist participants who may have found the content distressing. We also made the investigators' email addresses available for any clarification, doubts, or requests for additional information. The questionnaires took approximately 10 min to complete. We emphasise that there were no rewards (monetary or otherwise) for participating in the study. Finally, we used IBM SPSS Statistics for Windows, Version 27.0. Vila Real, Portugal: IBM Corp to process the data.

2.3. Data Analysis

Initially, a descriptive analysis was conducted to characterise the sample. To verify the normality assumptions required for parametric statistics, we calculated the values of skewness and kurtosis. We considered absolute values of these statistics lower than 3 and 7, respectively, to indicate adjustment close to the normal distribution [38]. Because the variable of suicidal ideation had a kurtosis value greater than 7, we decided to use non-parametric tests for statistical analyses. We grouped social media into three categories: Instagram, TikTok, and other platforms, to ensure more equivalent analysis. We performed a chi-square test to analyse the association between the variables of suicidal ideation and

addiction to social media, and reported the result of Fisher's exact test for a percentage of cells with an expected count of less than five and greater than 20%. As a measure of effect size, we presented phi. We also determined the non-parametric correlation coefficient R of Spearman for quantitative variables with distribution other than normal [39] and used Cohen's [40] criteria to read the magnitude of the correlation. We established that associations would be "large" between 0.50 to 1.00, "moderate" from 0.30 to 0.49, and "small" from 0.10 to 0.29. Additionally, we used the Kruskal–Wallis test to compare the social media under study regarding values of suicidal ideation and addiction since they are three independent groups with non-normal distribution. The Kruskal–Wallis test was also used to compare values of suicidal ideation by levels of physical activity frequency since there were four independent groups with distribution other than normal. Whenever the Kruskal–Wallis test showed statistically significant differences between groups, we performed a multiple comparisons test to identify the groups with differences between them. We presented eta square as a measure of effect size for the Kruskal–Wallis test. To analyse the role of addiction to social media, frequency of physical activity, and gender as predictors of suicidal ideation, we performed binary logistic regression analysis and verified the assumptions underlying the analysis, including the absence of outliers that affect the model and the absence of multicollinearity.

3. Results

3.1. Use of Social Media

The majority of participants ($n = 202$, 64.1%) reported using Instagram as their primary social media, followed by TikTok ($n = 29$, 9.2%). Other social media were also used by participants, including WhatsApp ($n = 22$, 7.0%), YouTube ($n = 21$, 6.7%), Twitter ($n = 17$, 5.4%), Facebook ($n = 10$, 3.2%), Snapchat ($n = 6$, 1.9%), Reddit ($n = 2$, 0.6%), Discord ($n = 2$, 0.6%), Messenger ($n = 2$, 0.6%), and Spotify ($n = 2$, 0.6%).

3.2. Prevalence of Suicidal Ideation

In this study, participants reported varying levels of suicidal ideation, ranging from 0 to 171 with a median score of 9 points (IQR = 22.00, $M = 17.92$, $SD = 25.96$). A quarter of the sample had scores above 24. Of the total sample, 287 individuals (91.1%) did not report suicidal ideation, while 28 (8.9%) did report suicidal ideation with scores greater than or equal to 41 points.

3.3. Prevalence of Addiction to Social Media

In the studied sample, the addiction to social media ranged from 0 to 9 points, with a median score of 2.00 (IQR = 3.00, $M = 1.93$, $SD = 1.84$). About 25% of the sample scored above 3. Among the participants, 281 individuals (89.2%) scored less than 5, indicating that they are not addicted to social media, while 34 individuals (10.8%) scored 5 or more, indicating that they are addicted.

3.4. Association between Suicidal Ideation and Addiction to Social Media

Of the sample, 265 participants (84.1%) did not exhibit addiction to social media or suicidal ideation. Meanwhile, 12 participants (3.8%) demonstrated addictive use of social media and suicidal ideation, while 16 participants (5.1%) reported suicidal ideation without exhibiting addiction to social media. Additionally, 22 participants (7.0%) did not report suicidal ideation but scored higher than 5 points on the social media addiction scale. There was a statistically significant association between addiction to social media and suicidal ideation (Fisher test, $p < 0.001$, $\Phi = 0.32$), with a significantly higher proportion of participants with addiction to social media and suicidal ideation (35.3%) than those without suicidal ideation (5.7%).

We found a moderate positive linear association ($r_s = 0.33$, $p \leq 0.001$) between suicidal ideation and social media addiction. This indicates that higher scores on social media

addiction are associated with higher scores on suicidal ideation. Our results were consistent with correlation analyses conducted between the scores of the two variables.

3.5. Comparison of Suicidal Ideation and Social Media Addiction across Different Platforms

Table 1 displays the results of our analysis, which compared suicidal ideation scores and addiction levels across different social media platforms.

Table 1. Differences in social media addiction and suicidal ideation across platforms.

	Instagram (<i>n</i> = 202) Mdn (IQR)	TikTok (<i>n</i> = 29) Mdn (IQR)	Others (<i>n</i> = 84) Mdn (IQR)	H	<i>p</i>	η^2
Addiction to social media	2.00 (2.00)	2.00 (2.00)	1.00 (3.00)	6.90	0.032	0.02
Suicidal ideation	9.00 (20.00)	20.00 (46.00)	9.50 (22.00)	3.44	0.179	0.01

We observed statistically significant differences in the values of the addiction scale across the evaluated social media ($H = 6.90$, $p = 0.032$, $\eta^2 = 0.02$). These results highlighted a significant difference between TikTok and the other social media ($p = 0.029$), with the median value obtained on the SMDS-SF scale for the other social media being lower than for TikTok. However, we did not observe any statistically significant differences in the levels of suicidal ideation among participants using different social media platforms.

3.6. Comparison of Levels of Suicidal Ideation by Gender according to Different Frequencies of Physical Activity Practice

Statistically significant differences in suicidal ideation values were observed only among female participants ($H = 12.42$, $p = 0.002$, $\eta^2 = 0.05$), and not among male participants ($H = 1.57$, $p = 0.456$, $\eta^2 = 0.02$), particularly in the group that does not practise physical activity, compared to those who practise physical activity once or twice a week ($p = 0.009$) and those who practise physical activity three or more times a week ($p = 0.009$).

Among female participants, the group who do not practise physical activity had a higher median value of suicidal ideation (Mdn = 16.00, IQR = 26.00) than those who practise physical activity once or twice a week (Mdn = 7.00, IQR = 16.00) and those who practise physical activity three or more times a week (Mdn = 7.00, IQR = 17.00).

3.7. Addiction to Social Media, Physical Activity Practice and Gender as Predictors of Suicidal Ideation

The binary logistic regression model, which included addiction to social media, physical activity, and gender as predictors of suicidal ideation (Table 2), was statistically significant ($\chi^2(4) = 23.91$, $p < 0.001$) and explained 17% of the variation in suicidal ideation (R^2 Nagelkerke = 0.17; percentage of cases correctly classified = 91.6%). Only addiction to social media was a statistically significant predictor of suicidal ideation ($B = 2.28$, Wald = 23.36, $p < 0.001$), indicating that the presence of addiction to social media is associated with an increase in the probability of suicidal ideation.

Table 2. Binary logistic regression model for suicidal ideation.

	B (SE)	<i>p</i>	OR	IC 95%
Frequency of physical activity		0.309		
1–2 times a week	−0.85 (0.56)	0.128	0.43	0.14, 1.28
3 or more times a week	−0.43 (0.55)	0.436	0.65	0.22, 1.92
Addition to social media	2.28 (0.47)	<0.001	9.73	3.87, 24.48
Gender	−0.49 (0.52)	0.351	0.62	0.22, 1.71

Note. R^2 Cox & Snell = 0.07; R^2 Nagelkerke = 0.17.

4. Discussion

The main objective of this investigation was to examine the relationship between suicidal ideation and addiction to various social media. Consistent with previous research by Jasso-Medrano and López-Rosales [25] and Brailovskaia et al. [27], a statistically significant association was found between the two variables.

Significant differences in addiction scale values were observed between TikTok and other social media platforms, but no prior studies were found in our literature review that compared addiction values across different platforms. This may be attributed to TikTok's recent rise in popularity, particularly during the pandemic when individuals were confined to their homes and turned to social media as a coping mechanism for boredom. Young people, in particular, have been found to use social media to combat boredom, which has been associated with problematic use [12]. Although the median value does not indicate addiction, it is higher for TikTok compared to other social media platforms, except for Instagram.

Our investigation into the values of the suicidal ideation scale across multiple social media platforms revealed no significant differences. These findings contrast with those of Keating and Rudd-Arieta [18], who identified YouTube as having the highest levels of suicidal ideation, and with those of Jasso-Medrano and López-Rosales [25], who found WhatsApp to have the lowest levels.

One of the objectives of our study was to assess whether the frequency of physical activity (PA) has any bearing on the levels of suicidal ideation among young adults, with a focus on gender differences. Our findings are consistent with those of previous studies by Grasdalsmoen et al. [28], Kim et al. [29], and Koo and Kim [31], showing that a higher frequency of PA is associated with lower levels of suicidal ideation, but only among female participants. These results have important implications, as they suggest that incorporating physical exercise into intervention programs may be a promising approach to prevent suicidal ideation and suicide.

Overall, our study aimed to analyse the predictive role of addiction to social media, PA, and gender in relation to suicidal ideation. Our results revealed that addiction to social media is a significant predictor of suicidal ideation, even after controlling for the practice of PA and gender.

It is important to highlight some limitations of this study and provide recommendations for future investigations related to this topic. Some of the limitations of this study include the limited dispersion of ages in the sample and the small sample size in each social media platform pointed out by the participants. In addition, it is important to increase the sample size to include more young adults. Another limitation to be considered is that the sample does not exhibit characteristics of addictive behaviour to social media or suicidal ideation. It would be interesting to conduct a study with a sample of young adults who have these characteristics. We also stress the importance of carrying out longitudinal investigations that clarify the (bi)direction of the relationship established between addiction to social media and suicidal ideation or the effect of other variables on this relationship. We recommend asking about the type of content accessed on social media, the purpose of its use, and the amount of time people spend on social media weekly or daily.

Ultimately, it would be valuable to develop a trustworthy tool in Portuguese that can measure how social media are being used. We also recommend developing programs that encourage responsible social media use, especially among young people who use them the most.

5. Conclusions

Suicide is a major global public health issue that has a significant impact on young adults. This stage of life is characterised by instability, unique challenges, and new responsibilities, which may lead individuals to seek solace in social media. However, excessive use of social media can lead to addiction and, in turn, contribute to suicidal ideation.

Conversely, suicidal ideation may also increase the risk of addiction to social media. Other factors, such as depression, can also influence the relationship between these variables, as noted by e.g., Jasso-Medrano and López-Rosales [25].

The findings of this study suggest that there is a correlation between the use of social media and suicidal ideation. While there were no differences in the levels of suicidal ideation across various platforms, there were variations in addiction scores between TikTok and other platforms. Specifically, the median values on the SMDS-SF scale were lower for the latter.

Our study revealed that individuals who engaged in PA more frequently had lower levels of suicidal ideation than those who did not practise PA, but only among female participants. Although more research is needed, our data suggest that PA may have a positive impact on reducing suicidal ideation.

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References

1. Blachnio, A.; Przepiorka, A. Personality and positive orientation in Internet and Facebook addiction. An empirical report from Poland. *Comput. Hum. Behav.* **2016**, *59*, 230–236. [CrossRef]
2. Moromizato, M.S.; Ferreira, D.B.; Souza, L.S.; Leite, R.F.; Macedo, F.N.; Pimentel, D.M. O uso de internet e redes sociais e a relação com indícios de ansiedade e depressão em estudantes de medicina. *Rev. Bras. Educ. Méd.* **2017**, *41*, 497–504. [CrossRef]
3. Brandtzæg, P.B. The Social Media Natives. In *Digital Expectations and Experiences in Education*; Elstad, E., Ed.; Sense Publishers: Rotterdam, The Netherlands, 2016; pp. 149–162. [CrossRef]
4. Statistics Portugal. Inquérito à Utilização de Tecnologias da Informação e da Comunicação Pelas Famílias 2019. Available online: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=354447559&DESTAQUESmodo=2&xlang=pt (accessed on 22 August 2022).
5. Jeri-Yabar, A.; Sanchez-Carbonel, A.; Tito, K.; Ramirez-Delcastillo, J.; Torres-Alcantara, A.; Denegri, D.; Carreazo, Y. Association between social media use (twitter, instagram, facebook) and depressive symptoms: Are twitter users at higher risk? *Int. J. Soc. Psychiatry* **2019**, *65*, 14–19. [CrossRef] [PubMed]
6. Petalas, D.P.; Konijn, E.A.; Johnson, B.K.; Veldhuis, J.; Vaate, N.; Burgers, C.; Droog, E.; Miedzobrodzka, E.; Balint, K.E.; Schoot, R. Plurality in the measurement of social media use and mental health: An exploratory study among adolescents and young adults. *Soc. Media Soc.* **2021**, *7*, 20563051211035353. [CrossRef]
7. Pan, P.-Y.; Yeh, C.-B. Internet addiction among adolescents may predict self-harm/suicidal behavior: A prospective study. *J. Pediatr.* **2018**, *197*, 262–267. [CrossRef] [PubMed]
8. Choi, D.-H.; Noh, G.-Y. The influence of social media use on attitude toward suicide through psychological well-being, social isolation, and social support. *Inf. Commun. Soc.* **2020**, *23*, 1427–1443. [CrossRef]
9. Berryman, C.; Ferguson, C.J.; Negy, C. Social media use and mental health among young adults. *Psychiatr. Q.* **2018**, *89*, 307–314. [CrossRef]
10. Choi, D.-H.; Noh, G.-Y. Associations between social media use and suicidal ideation in south korea: Mediating roles of social capital and self-esteem. *Health Commun.* **2020**, *35*, 1754–1761. [CrossRef]
11. Weinstein, E.; Kleiman, E.M.; Franz, P.J.; Joyce, V.W.; Nash, C.C.; Buonopane, R.J.; Nock, M.K. Positive and negative uses of social media among adolescents hospitalized for suicidal behavior. *J. Adolesc.* **2021**, *87*, 63–73. [CrossRef]

12. Stockdale, L.A.; Coyne, S.M. Bored and online: Reasons for using social media, problematic social networking site use, and behavioral outcomes across the transition from adolescence to emerging adulthood. *J. Adolesc.* **2020**, *79*, 173–183. [[CrossRef](#)]
13. Bailey, E.; Boland, A.; Bell, I.; Nicholas, J.; La Sala, L.; Robinson, J. The Mental Health and Social Media Use of Young Australians during the COVID-19 Pandemic. *Int. J. Environ. Res. Public Health* **2022**, *19*, 1077. [[CrossRef](#)]
14. Macrynika, N.; Auad, E.; Menjivar, J.; Miranda, R. Does social media use confer suicide risk? A systematic review of the evidence. *Comput. Hum. Behav. Rep.* **2021**, *3*, 100094. [[CrossRef](#)]
15. Arendt, F.; Scherr, S.; Romer, D. Effects of exposure to self-harm on social media: Evidence from a two-wave panel study among young adults. *New Media Soc.* **2019**, *21*, 2422–2442. [[CrossRef](#)]
16. Kingsbury, M.; Reme, B.-A.; Skogen, J.C.; Sivertsen, B.; Øverland, S.; Cantor, N.; Hysing, M.; Petrie, K.; Colman, I. Differential associations between types of social media use and university students' non-suicidal self-injury and suicidal behavior. *Comput. Hum. Behav.* **2021**, *115*, 106614. [[CrossRef](#)]
17. Liu, X.; Huang, J.; Yu, N.X.; Li, Q.; Zhu, T. Mediation effect of suicide-related social media use behaviors on the association between suicidal ideation and suicide attempt: Cross-sectional questionnaire study. *J. Med. Internet Res.* **2020**, *22*, e14940. [[CrossRef](#)]
18. Keating, S.R.; Rudd-Arieta, M. Emerging adults' attitudes and beliefs about suicide and technology/social media. *J. Nurse Pract.* **2021**, *17*, 833–839. [[CrossRef](#)]
19. Hamilton, J.L.; Biernesser, C.; Moreno, M.A.; Porta, G.; Hamilton, E.; Johnson, K.; Poling, K.D.; Sakolsky, D.; Brent, D.A.; Goldstein, T.G. Social media use and prospective suicidal thoughts and behaviors among adolescents at high risk for suicide. *Suicide Life-Threat. Behav.* **2021**, *51*, 1203–1212. [[CrossRef](#)]
20. Unruh-Dawes, E.L.; Smith, L.M.; Marks, C.P.K.; Wells, T.T. Differing relationships between instagram and twitter on suicidal thinking: The importance of interpersonal factors. *Soc. Media Soc.* **2022**, *8*, 20563051221077027. [[CrossRef](#)]
21. Fernandes, B.; Maia, B.R.; Pontes, H.M. Adição à internet ou uso problemático da internet? Qual dos termos usar? *Psicol. USP* **2019**, *30*, 1–8. [[CrossRef](#)]
22. Pontes, H.M.; Caplan, S.E.; Griffiths, M.D. Psychometric validation of the Generalized Problematic Internet Use Scale 2 in a Portuguese sample. *Comput. Hum. Behav.* **2016**, *63*, 823–833. [[CrossRef](#)]
23. Caplan, S.E. Problematic internet use and psychosocial well-being: Development of a theory based cognitive-behavioral measurement instrument. *Comput. Hum. Behav.* **2002**, *18*, 553–575. [[CrossRef](#)]
24. Ismail, W.S.W.; Sim, S.T.; Tan, K.-A.; Bahar, N.; Ibrahim, N.; Mahadevan, R.; Jaafar, N.R.N.; Baharusin, A.; Aziz, M.A. The relations of internet and smartphone addictions to depression, anxiety, stress, and suicidality among public university students in Klang Valley, Malaysia. *Perspect. Psychiatr. Care* **2020**, *56*, 949–955. [[CrossRef](#)] [[PubMed](#)]
25. Jasso-Medrano, J.L.; López-Rosales, F. Measuring the relationship between social media use and addictive behavior and depression and suicide ideation among university students. *Comput. Hum. Behav.* **2018**, *87*, 183–191. [[CrossRef](#)]
26. Donnelly, E.; Kuss, D.J. Depression among users of Social Networking Sites (SNSs): The role of SNS addiction and increased usage. *J. Addict. Prev. Med.* **2016**, *1*, 107. [[CrossRef](#)]
27. Brailovskaia, J.; Teismann, T.; Margraf, J. Positive mental health mediates the relationship between facebook addiction disorder and suicide-related outcomes: A longitudinal approach. *Cyberpsychol. Behav. Soc. Netw.* **2020**, *23*, 346–350. [[CrossRef](#)]
28. Grasdalsmoen, M.; Eriksen, H.R.; Lønning, K.J.; Sivertsen, B. Physical exercise, mental health problems, and suicide attempts in university students. *BMC Psychiatry* **2020**, *20*, 175. [[CrossRef](#)] [[PubMed](#)]
29. Kim, H.-W.; Shin, C.; Han, K.-M.; Han, C. Effect of physical activity on suicidal ideation differs by gender and activity level. *J. Affect. Disord.* **2019**, *257*, 116–122. [[CrossRef](#)]
30. Brailovskaia, J.; Teismann, T.; Margraf, J. Positive mental health mediates the relationship between physical activity and suicide-related outcomes: A three-year follow-up study. *Curr. Psychol.* **2020**, *41*, 6543–6548. [[CrossRef](#)]
31. Koo, K.M.; Kim, K. Effects of physical activity on the stress and suicidal ideation in korean adult women with depressive disorder. *Int. J. Environ. Res. Public Health* **2020**, *17*, 3502. [[CrossRef](#)]
32. Vancampfort, D.; Hallgren, M.; Firth, J.; Rosenbaum, S.; Schuch, F.B.; Mugisha, J.; Probst, M.; Van Damme, T.; Carvalho, A.F.; Stubbs, B. Physical activity and suicidal ideation: A systematic review and meta-analysis. *J. Affect. Disord.* **2018**, *225*, 438–448. [[CrossRef](#)]
33. Coolican, H. *Research Methods and Statistics in Psychology*, 6th ed.; Psychology Press: London, UK, 2014.
34. Costa, L.; Matos, A.O.; Costa, J.J. Social media disorder scale–short form (SMDS-SF): Estudo de algumas propriedades psicométricas em jovens adultos portugueses. *Rev. Port. Enferm. Saúde Ment.* **2018**, *6*, 65–70. [[CrossRef](#)]
35. Eijnden, R.; Lemmens, J.; Valkenburg, P. The social media disorder scale: Validity and psychometric properties. *Comput. Hum. Behav.* **2016**, *61*, 478–487. [[CrossRef](#)]
36. Reynolds, W.M. *SIQ, Suicidal Ideation Questionnaire: Professional Manual*; Psychological Assessment Resources: Odessa, FL, USA, 1988.
37. Ferreira, J.; Castela, M. Questionário de Ideação Suicida. In *Testes e Provas Psicológicas Em Portugal*; Simões, M.R., Gonçalves, M.M., Almeida, L.S., Eds.; APPORT/SHO: Braga, Portugal, 1999; pp. 129–130.
38. Marôco, J. *Análise de Equações Estruturais: Fundamentos Teóricos, Software & Aplicações*; ReportNumber: Pero Pinheiro, Portugal, 2010.

39. Field, A. *Descobrimos a Estatística Usando O SPSS*, 2nd ed.; Artmed: Porto Alegre, Brasil, 2009.
40. Cohen, J. *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed.; Lawrence Erlbaum Pub: Hillsdale, NJ, USA, 1988.

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