Proceedings of ICEIPI 2025 Symposium: Reimagining Society: AI's Role in Cultural Transformation and Learning Environments
DOI: 10.54254/2753-7048/2025.BO25025

The Impact of Chat Software Usage Time on Adolescents' Subjective Well-being

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Abstract. The background and motivation of this study is to explore the impact of online activities on the subjective well-being of adolescents in the era of the recent prevalence of electronic products. This study mainly focuses on the branch of chat software. As chat software plays an important role in the use of social media and adolescents are a vulnerable group, it is necessary to investigate the relationship between chat software and subjective well-being of adolescents. The title of this study is the impact of chat software usage time on adolescents' subjective well-being. The research objective is to use the research results to help adolescents plan their usage time of chat software reasonably and gain a better understanding of its impact on chat software. The research method of this study is a questionnaire survey, using the psychological scale SWB, which has been proven to be reliable and valid, to calculate scores and evaluate subjective well-being, and to compare the personal information provided by participants. The participants of the study are adolescents aged 12-18 who are in puberty, with a sample size of 110. The research results show that excessive use of chat software by adolescents is not conducive to the development of their subjective well-being. Proper use of chat software can promote the development of subjective well-being in adolescents. This study can remind adolescents in their adolescence not to use chat software too much. Help teenagers better plan their usage time of chat software. Promote their subjective well-being.

Keywords: Adolescents, subjective well-being, chat software, usage time.

1. Introduction

According to Ruth Plackett “social media use interventions are effective in improving mental well-being, especially for depression and when using therapy-based interventions. Further experimental and longitudinal research is needed with representative samples to investigate who may benefit most from social media use interventions.” [1]. As well as “Pediatricians should be aware of the risks associated to a problematic social media use for the young's health and identify sentinel signs in children as well as prevent negative outcomes in accordance with the family.” from Elena Bozzola [2]. There have been many studies on the relationship between adolescent subjective well-being and social media. Previous studies have shown that the use of social media may have positive or negative effects on adolescent subjective well-being. This study explores a more detailed branch of

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chat software. Because chat software has become the main proportion of teenagers using social media nowadays, and the subjective well-being of adolescents deserves attention.

Changes in mood were associated with socio-economic background， demographic factors (sex, age, socio-economic status (HISEI)), intelligence, grades (report cards provided by the schools), personality (neuroticism, extraversion) and perceived parental expectations and support Ricarda Steinmayr [3]. All can be listed as influencing the subjective well-being of adolescents. The experimental objective of this study is to explore the impact of chat chat software usage time on adolescents. This study can be used to reference the impact of a certain type of social media on adolescents.

Meanwhile, according to Jean M Twenges' view"nationally representative yearly surveys of United States 8th, 10th, and 12th graders 1991-2016 (N = 1.1 million), psychological well-being (measured by self-esteem, life satisfaction, and subjective well-being) suddenly decreased after 2012 [4]. Adolescents who spent more time on electronic communication and screens (e.g., social media, the Internet, texting, gaming) and less time on onscreen activities (e.g., in-person social interaction, sports/exercise, homework, attending religious services) had lower psychological well-being. Adolescents spending a small amount of time on electronic communication were the happiest." [4]. This study suggests that the relationship between social media usage time and subjective well-being of adolescents is completely inversely proportional, This does not mean that teenagers should completely abandon the online life of chat software, as research results show that adolescents who use chat software for 1-3 hours per day have the highest average subjective well-being, indicating that appropriate use of chat software is beneficial for the development of adolescents ' subjective well-being.The research objective of this study is to help adolescents become aware of the dangers of excessive use of chat software, while also recognizing that using too little chat A chat software is not advisable.

This study used a questionnaire survey, which is suitable for this research because it requires a larger sample size to investigate the subjective well-being of the survey population, and the questionnaire is more suitable for defining the entire population in such research. Determine the relationship between the usage time of chat software and the subjective well-being of adolescents based on the tendencies exhibited by the majority of people.

This study contributes to the theoretical aspect by providing new elements that influence the subjective well-being of adolescents and conducting more detailed research on the branch of social media. For practical contributions, this study provides replicable solutions, replicable questionnaires, and experimental references for the relationship between social media and adolescents.

The structure of this article is abstract, introduction, The main text contains three arguments, along with figures and a reference list.

2. Negative correlation between chat software usage time and subjective well-being

According to Table 1, the data revealed a significant negative correlation between daily chat software usage time and subjective well-being scores ($r = -.58$, $p < .01$), with ≥6-hour users ($M = 65$) scoring 20.7% lower than <1-hour users ($M = 82$). The definition of subjective well-being in this study is based on the score obtained from the SWB scale. There are a total of 20 questions. Each question has a maximum score of 6 points. The total score is 120 points. The data shows that the average subjective well-being score of teenagers who use chat software for less than 1 hour is 82 (sample size is 8, and abnormal individuals cannot be ruled out. This average score is for reference only). The average subjective well-being score of teenagers who use chat software for 1-3 hours is

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76 points. The sample size is 22, which has sufficient representativeness. The average subjective well-being of teenagers who use chat software for 4-6 hours is 72 points, and it has begun to gradually decline. The average subjective well-being score for those who have used it for more than six hours is 65, which is the lowest. The average score for the<1-hour group is 82 points compared to 65 points for the ≥ 6-hour group. The decrease is 20.7%. The results are quite significant.

Table1: Mean well-being scores by usage time

Usage time	Sample Size	Total Well-Being(Mean)
＜1	8	82
1-3	22	76
4-6	32	72
≥6	28	65

Regarding the analysis of details, teenage users who use chat software for less than one hour per day have the highest average feedback scores on the SWB scale regarding family relationships (I sometimes find it difficult to communicate with my family (including parents, children, loved ones, etc.) and a sense of life goals (I am not sure what meaning my life is) (reverse scoring), with scores of 5.1 and 4.6 respectively (out of a maximum of 6). The average score for social skills related issues among teenagers who use chat software for 1-3 hours per day (such as "I often find it difficult to establish friendships with others") is 3.8, which is also a relatively high score (reverse scoring). The average score for emotional stability related issues (such as reverse scoring) among teenagers who use chat software for 4-6 hours per day is 3.4, and subjective well-being related factors have begun to decline. The average scores of adolescent users who only spend more than six hours per day on physical health (I often feel uncomfortable in some parts of my body) and emptiness (I often feel like I'm just passing by every day) are 2.44 and 1.78 points (reverse score), respectively, indicating that their subjective well-being is not ideal.

Jean M Twenge's viewpoint suggests that prolonged use of electronic devices can lead to the occupation of sleep, exercise, and face-to-face social time, resulting in a decrease in subjective well-being [5]. This can also be applied to the impact of chat software on the subjective well-being of adolescents. The questionnaire results show. Teenagers who use chat software for more than six hours a day have an average score of 3.33 on scale questions related to family (I sometimes find it difficult to communicate with family members, including parents, children, loved ones, etc.). The average score for physical health is only 2.44 points (I often feel particularly uncomfortable in some parts of my body). This shows that excessive use of chat software can affect the social supply and physical health of teenagers.

There are aspects related to psychological dependence and negative emotions. The study speculates on the reasons for subjective well-being caused by negative emotions: this is due to passive browsing of social media (such as group chats and moments that can easily trigger anxiety). Researchers conducted interviews with participants with high usage time (greater than six hours) and found that these participants frequently participate in activities on QQ Space or Moments. At the same time, these participants scored an average of only 2.89 on the question 'Compared to others, I feel quite disadvantaged.'. The average score for the question 'I often get annoyed by trivial matters' is only 1.78, which confirms that the negative emotions of this group come from the comparison with others when browsing chat software and passively socializing. The questionnaire shows that there are exceptions where the total score of high usage users are relatively high. The exception is

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that its chat software activity is mainly active socializing (chatting with friends or family). Or its extraversion can buffer negative effects. Although usage duration is a fundamental factor, further analysis suggests that usage patterns (such as active socializing vs. passive browsing) may moderate this negative association, which will be explored in argument two.

3. The moderating role of usage patterns: active socialization vs. passive browsing

According to the questionnaire results(Table2), the impact of chat software on subjective well-being is not solely determined by the duration of use, but by the way they are used. This article defines active and passive socialization as the behavior of communicating with others through private chats or deep communication, and the behavior of only obtaining information without communicating with others through social media such as scrolling through social media or group chats. The main point of this section is that active socializing can alleviate the negative effects of prolonged use of chat software. Passive socialization can exacerbate the decline in subjective well-being. The data will be combined with the average scores of questions related to social quality in the SWB questionnaire (society provides more and more opportunities for people) (I often find it difficult to establish friendships with others) (I feel like most people have more friends than me) (I feel particularly happy when I am with my family), as well as special attention to exceptional responses during different time periods.

Table 2: Well-being scores by usage type

Usage Pattern	＜1 hour	1-3 hours	4-6 hours	≥6 hours
Active Socialization	5.2	4.9	4.6	4.1
Passive Browsing	4.1	3.6	3.2	2.5

Note: Passive browsing scores are reverse-coded (lower=more negative affect).

The positive effects of active socializing within chat software. The data shows that participants who give a score of five or more when answering the question 'I feel particularly happy when I am with my family', even if they use electronic devices for 4-6 hours a day. Its overall average score is 75 points, which is about three points higher than the average score of 72 points in the same group. One of the participants who scored six points on this question and used it for 4-6 hours scored a total of 84 points. Referring to Social Support Theory, intimate interaction enhances sense of belonging and emotional regulation ability. Proactively socializing while using chat software can promote the development of subjective well-being in adolescents. This also confirms that the use of chat software is not completely harmful or useless.

The negative effects of passive browsing. The proportion of participants with a score of less than or equal to three who use electronic devices for more than or equal to six hours a day when answering the question 'I often get annoyed by trivial matters' is 70%.

At the same time, comparing all the answers to this question, it was found that as the daily use of chat software increased, the average score of this question decreased. As shown in Table 3, the average score for participants who use less than one hour per day is 4.1 points. The average score for participants who use 1-3 hours a day is 3.6 points. The average score for participants who use 4-6 hours a day is 3.2 points. Participants who use it for more than six hours a day scored an average of 2.5 points. Through the phenomenon of diminishing, it can be inferred from the Social Comparison

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Theory that passive browsing triggers upward comparison and leads to anxiety (referring to the low score situation of the question "I feel like most people have more friends than me")

Table 3: Self-evaluation scores by usage time

Self-Evaluation Item	＜1 hour	1-3 hours	4-6 hours	≥6 hours
Life purpose	4.6	4.3	4.0	3.5
Self-Identity	4.8	4.5	4.2	3.7
Emotional Resilience	3.5	3.2	2.9	2.3

Note. Emotional Resilience scores are reverse-coded (higher scores indicate better resilience). All items measured on a 6-point Likert scale (1 = strongly disagree, 6 = strongly agree).

The research results indicate that active socializing can partially offset the negative effects of time use (such as the subjective well-being level of high active socializing users approaching the 1–3-hour group in the 4-6 hour group), although it may be affected by individual differences and data limitations. However, the overall trend of the data can roughly infer the conclusion of this paragraph.

Although usage patterns can regulate the impact of time, deep psychological mechanisms such as the mediating role of self-evaluation still need to be explored, which will be the focus of argument three.

4. The mediating role of self-perception: how chat software usage undermines well-being via self-evaluation

Research shows that the use of chat software not only directly affects the subjective well-being of adolescents but also leads to a weakening of self-awareness (such as self-worth and sense of meaning in life), indirectly resulting in a decrease in subjective well-being.

Research data shows. As the participants increase their daily use of chat software. Their levels of self-evaluation and self-awareness will decrease (refer to the scores in the questionnaire related questions). This leads to a decrease in their subjective well-being.

Focus on four questions: "Most of the life goals I have set can motivate me, not discourage me", "I often feel like I'm just slacking off every day" (reverse rating), "I feel gratified that my ideas have become more mature over the years", and "I'm quite satisfied with my personality". The average score for questions related to life goals. The average score for participants who use chat software for less than one hour per day is 4.6 out of 6. The average score for participants using 1-3 hours is 4.3 points. 4-6 hours is 4.0 minutes. More than six hours is 3.5 minutes. Presenting a decreasing status with a range of 1.1 points. The decrease is about 24%. The average score for the problem of often slacking off. The average score for participants who use chat software for less than one hour per day is 4.2 points. 1-3 hours is 3.9 minutes. 4-6 hours is 3.5 minutes. More than 6 hours is 2.8 minutes. The range is 1.4 points. The decrease is 33%. The average score for questions related to satisfying one's personality. The average score for participants who use chat software for less than one hour per day is 4.8 points. 1-3 hours is 4.5 minutes. 4-6 hours is 4.2 minutes. More than 6 hours is 3.7 points. The range is 1.1 points. The decrease is 23%. The average score for mature ideas. The average score for participants who use chat software for less than one hour per day is 4.9 points. 1-3 hours is 4.6 minutes. 4-6 hours is 4.3 minutes. More than 6 hours is 3.8 minutes. The range is 1.1 points. The decrease is 22%. From the data results, all self-awareness items deteriorate with increasing usage

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time. And participants who use chat software for more than six hours a day showed the greatest decrease in scores on questions related to sense of purpose and self-identity.

Refer to the self-determination theory [6], it is speculated that prolonged use of chat software may erode autonomy (such as being controlled by information flow) and competence (such as social comparison leading to self-doubt). This leads to a decrease in subjective well-being.

But it cannot be ruled out that there may be a reverse causal relationship: individuals with low subjective well-being may rely more on chat software to escape reality. This is a topic that requires more detailed exploration in future research.

In summary, chat software not only directly consume time resources, but also indirectly damage subjective well-being by weakening self-awareness. Future research can further validate this mechanism by combining objective behavioral data, such as screen usage classification statistics.

5. Conclusion

This study confirms the first argument that chat software usage time is significantly negatively correlated with subjective well-being in adolescents. The total score of subjective well-being in the 6-hour usage group (M=65) was significantly lower than that in the<1-hour group (M=82). The second argument of this study suggests that active socializing (such as private chats with family and friends) can buffer negative effects, while passive browsing (such as scrolling through social media) exacerbates a decrease in subjective well-being. The statistical results show that highly active social users (with scores greater than 5 points on issues related to subjective family well-being), even after using for 4-6 hours, have a total score (M=75) close to the low use group. The third argument reveals that self-awareness (such as life goals and self- identity) is a key mediating variable that affects subjective well-being over time. The score of "life goal" related questions in the group of 6 hours or more is 1.1 points lower than that in the group of less than 1 hour.

For theoretical contributions, this study extends the theory of screen time to demonstrate the moderating effects of usage behavior (active/passive) and psychological mechanisms (self-awareness).

Providing new evidence for social comparison theory: The upward comparison triggered by passive browsing causes greater harm to adolescents' self-evaluation.

The practical significance of this study is for parents and educators. It is recommended that teenagers among their family members limit their daily use of chat software to no more than 3 hours and encourage high-quality socializing (such as family group chats instead of aimless screen scrolling) and pay attention to teenagers' sense of self-worth. Platform designers should develop an "active social reminder" function to reduce algorithmic push notifications for passive browsing.

The limitation of this study is that self-reported data may have biases (such as social expectation bias), which can be combined with objective usage data (such as statistical classification of mobile screen time) for future research.

Although chat software is an important social tool for teenagers, this study demonstrates that excessive use (especially passive behavior) can reduce subjective well-being by eroding self-awareness. The key lies in balancing usage time, optimizing usage methods, and strengthening self-identity education.

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