



# Screen time and quality of life in Austrian young adults

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## Abstract

**Aim** This study aimed to investigate the screen-related habits and quality of life among a sample of young Austrian adults. **Subject and methods** A cross-sectional online questionnaire study was conducted, assessing quality of life using the World Health Organization (WHO) Quality of Life–BREF questionnaire. Participants were queried about their physical activity levels and screen-based activities, including social media engagement, computer or mobile phone gaming, and on-demand TV or series watching. Linear regression analysis was employed to explore the relationship between quality of life and screen time. Additionally, gender differences and correlations between quality of life and BMI and age were assessed.

**Results** The study comprised 400 young Austrian adults aged 18 to 30. Findings revealed negative associations between quality of life and social media usage, as well as watching series. Conversely, quality of life was positively correlated with physical activity. While female participants exhibited significantly greater engagement with computer or mobile games, no gender differences were observed in physical activity levels. Notably, gaming accounted for the majority of screen time.

**Conclusion** Elevated screen time was linked to decreased quality of life, while increased physical activity was associated with higher quality of life. Gaming emerged as the predominant screen-related activity. Future research should investigate strategies to integrate physical activity into gaming to potentially enhance overall quality of life. Promoting awareness among young adults regarding their screen usage across various devices and its potential adverse effects on their well-being could play a pivotal role in fostering improvements.

**Keywords** Social media · Series · Video games · Mobile games · Physical activity · BMI

## Introduction

Mobile phones, tablets, computer, and television screens are ubiquitous and are symbols of our modern world. For young adults growing up as digital natives, information and entertainment on screens is a substantial part of everyday life (Neza and Russell 2019). Screen time is oftentimes spent sedentary. It may therefore interact with emotional and mental health.

High levels of screen time are associated with depressive symptoms, psychological distress, and lower self-esteem (Hoare et al. 2016). From early adolescence on, children

spend a considerable amount of time on social media and online games (Mittmann et al. 2021). Yet, children and adolescents spending more time with different sedentary behaviors report lower health-related quality of life in physical, mental, and social areas. Social media use is found to be associated with body image concerns and eating disorders. Feelings of envy and inadequacy can be increased by social media use (Elia et al. 2020). Problematic use of social media was found to be associated with higher prevalence of depression and anxiety (Marino et al. 2018; Wong et al. 2020), and sedentary screen-related behaviors might impair the quality of interpersonal relationships with friends and family (Iannotti et al. 2009).

Screen time might also be associated with unhealthy dietary behaviors, weight status, sleep problems, and musculoskeletal pain (Pearson and Biddle 2011; Costigan et al. 2013), and screen-based activities may reduce the time spent with physical activity (Marsh et al. 2013). Girls and young women might be especially at risk, as their activity level might be lower and they spend more time in sedentary

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pursuits (Costigan et al. 2013). Sedentary behavior is an important indicator of health; decreased sedentary behavior and increased physical activity are protective factors against weight gain (Must and Tybor 2005).

Even though many studies and recommendations are concerned with the screen time of children and adolescents, young adults are an important age group regarding screen-based activities. Emerging adults have greater flexibility in schedules, and their media use lacks parental supervision (Marsh et al. 2013). Emerging adulthood is a sensitive transitional phase, as essential developmental tasks must be mastered during this important stage of life. Independence and personal responsibility develop regarding important health-related behavior patterns concerning screen-based activities. Successful mastery of these challenges is crucial for long-term physical and mental health (Nelson et al. 2008).

The aim of this study was to explore the screen-related habits and quality of life in a sample of young Austrian adults between 18 and 30 years of age. We analyzed gender differences in different sedentary behaviors as well as physical activity and how these factors are associated with quality of life.

## Method and material

### Recruitment and procedure

The study was conducted via a cross-sectional online questionnaire with three main parts. The whole survey took approximately 20 min. Participants were recruited via a panel distribution of the Österreichische Gallup-Institut GmbH. Participation was voluntary.

### Materials

The first part of the questionnaire covered sociodemographic questions such as age and gender. The second part covered quality of life via the World Health Organization Quality of Life (WHOQOL)–BREF questionnaire (World Health Organization 2004). We used the WHOQOL physical (PHYS), psychological (PSYCH), and social (SOC) domains to calculate an overall quality of life score, with higher scores indicating higher quality of life on a scale of 0 to 100. The third part included questions about physical activity and screen-based activities including social media use, computer or mobile phone games, and watching TV or series on demand.

### Analysis

For statistical analysis, SPSS 28.0.1.0 was used (IBM Corp. 2021). We compared the mean values of all variables

between female and male participants. We conducted a linear regression analysis ( $y_i = \alpha + \beta * x_i$ ) to explore the association between quality of life and social media use, watching TV or series on demand, playing computer or mobile phone games, using the internet, and physical exercise. Pearson correlations were computed to examine the correlations between screen time and body mass index (BMI) as well as physical activity.

## Results

### Participants

Our purposive sample consisted of a total of 400 participants between 18 and 30 years of age (mean age: 24.92 years,  $SD = 3.51$ ). One hundred and fifteen participants identified as male, 282 as female, 3 as non-binary. The three non-binary participants were excluded from all gender-specific analysis. 81.5% of our sample had a high school diploma (Matura) or a university degree. The sample consisted of 183 employed people, 32 workers, 19 school students, 19 currently unoccupied people, and 17 people with “other occupations.” One hundred and thirty persons were students of different disciplines.

### Quality of life, screen time, and exercise

Descriptive data including gender differences can be found in Table 1. Regression analyses for all examined variables can be found in Table 2. Social media consumption ( $\beta = -0.100$ ,  $t(394) = -1.986$ ,  $p < 0.05$ ) and watching TV or series on demand ( $\beta = -0.194$ ,  $t(394) = -3.894$ ,  $p < 0.001$ ) were negatively associated with quality of life. Exercise ( $\beta = 0.492$ ,  $t(394) = 2.357$ ,  $p < 0.05$ ) was significantly positively associated with quality of life. Playing computer or mobile games and time spent on the internet were not predictors of quality of life.

### Screen time and BMI/exercise

Screen time was not significantly correlated with BMI [ $r(399) = 0.085$ ,  $p = 0.090$ ] or with exercise [ $r(399) = -0.056$ ,  $p = 0.267$ ].

## Discussion

In this study among 400 Austrian young adults, we found that social media use and watching series were negatively associated with quality of life and that physical activity was positively associated with quality of life. Female participants

**Table 1** Mean values and standard deviations of quality of life, screen time and exercise

	Overall ( <i>n</i> = 400) Mean (SD)	Male ( <i>n</i> = 282) Mean (SD)	Female ( <i>n</i> = 115) Mean (SD)
WHOQOL	68.06 (15.54)	65.58 (17.17)*	68.96 (14.77)*
Computer/mobile games (h/day)	4.46 (2.72)	3.78 (2.55)**	4.73 (2.74)**
Social media (h/day)	2.82 (1.57)	2.78 (1.73)	2.84 (1.51)
TV or series on demand (h/day)	2.55 (1.81)	2.84 (1.95*)	2.42 (1.73)*
Internet use (h/day)	2.21 (1.50)	2.37 (1.58)	2.12 (1.45)
Exercise (h/week)	3.26 (3.61)	3.09 (3.55)	3.67 (3.82)
BMI	23.28 (4.19)	24.78 (4.21)**	22.67 (4.01)**

Significant gender difference \*\**p* < 0.001, \**p* < 0.05

**Table 2** Regression analysis

Variable	B	SE(B)	β	t	<i>p</i>
Intercept	72.413	2.306		31.403	< 0.001*
Social media	-0.984	0.495	-0.100	-1.986	0.048*
TV or series on demand	-1.668	0.428	-0.194	-3.894	< 0.001*
Computer/mobile games	0.302	0.280	0.053	1.079	0.281
Internet	-0.128	0.513	-0.012	-0.249	0.803
Exercise	0.492	0.209	0.115	2.357	0.019*

*N* = 400. \**p* < 0.05. *R*<sup>2</sup> = 0.068

spent significantly more time with computer or mobile games; other screen-based activities and exercise showed no gender differences.

Our findings correspond to findings of previous studies, which also identified screen time as negatively associated with different aspects of quality of life (Lavados-Romo et al. 2023; Scarabottolo et al. 2022; Elia et al. 2020). Ye et al. (2022) also found that “passive” screen time like watching TV was a predictor for lower quality of life in children. Social media use has also been targeted as a predictor for lower quality of life. A cohort study among children from the Netherlands showed that quality of life was predicted by not only time spent on social media platforms but also by the number of social media platforms used. Information overflow problems with media multitasking, exposure to idealized depictions of others, and the increased risk of being cyberbullied are suggested reasons for the negative associations (You et al. 2022). While most of the existing studies focus on children, our results suggest that these associations may also hold true for young adults.

Our participants spent about 12 h per day with screen-related activities mentioned in our questionnaire. This is more than the 4 to 8 h found by (Achak et al. 2023) in a sample of Moroccan college students and substantially more than the 2 to 4 h per day Zapico et al. (2023) found in a sample of Spanish children and adolescents. Even though

our question about internet use explicitly excluded considerations of other forms of screen time, our high results in screen time raise the question of potential overlaps among distinct screen-related activities, including gaming, internet usage, and social media engagement. Yet, it might also indicate an ongoing increase in screen time. Scarabottolo et al. (2022) found in a sample of older Brazilian adults that the screen time increased from 6.5 to 8 h per day in a longitudinal study from 2017 to 2019. It is possible that screen time has been constantly increasing over time because of improving services and games or the ever-greater incorporation of technology in our daily lives.

Our data indicate another noteworthy trend: respondents in our study, on average, dedicated 4.46 h per day to video and mobile games. This is interesting, as it demonstrates an increase in time spent on this genre. In the demographic of 15- to 25-year-olds, both in the United States and China, daily gaming averages approximately 69 min and 1.77 h, respectively (Clement 2023; Statista Research Department 2023). Significantly, within our sample, a distinct gender difference emerged as females allocated more time to computer and mobile gaming than males. This observation may suggest a reduction in the gender gap within the video gaming sphere. However, it is important to note that our data did not differentiate between computer-based and mobile gaming, and females tend to favor mobile gaming over males in general (Leonhardt and Overå 2021; Rodriguez-Barcenilla and Ortega-Mohedano 2022).

Neza and Russell (2019) report in their review that several studies show that screen time is strongly correlated with BMI or body weight, and this connection is pronounced especially for television screen time. We could not find a significant correlation between overall screen time and BMI in our sample. It is important to note that in our sample, TV screen time was limited and that less than 20% of our sample had a BMI over 25. Accordingly, our data showed no connection between screen time and reduced physical activity. This contradicts other findings in this research area. For example, Carpenter et al. (2021) and Marsh et al. (2013) assume that screen time

may displace time for physical activity, and Chenjin et al. (2020) suggest that physical activity and screen time may influence well-being independently and interactively.

While advocating for physical activity over sedentary screen time in young adults is undeniably crucial, it will most likely remain challenging to substantially curtail screen time within this age group. An alternative approach involves integrating screen time and physical activity. A prominent example of this concept is the mobile game Pokémon Go, which necessitates outdoor gameplay and active exploration of real-world locations. Numerous studies consistently demonstrate that this widely popular commercial game may yield positive effects on physical activity levels and reduce sedentary behavior (Nigg et al. 2017; Barkley et al. 2017; Khamzina et al. 2020). In this way, screen time can actively help with physical activity.

## Limitations

Our data were drawn from a self-selected purposive sample of young Austrians. Therefore, our findings may not be generalizable to other populations. Furthermore, the study relied on self-reported data, which may be subject to social desirability bias or error in self-judgment.

## Conclusion

Quality of life, which includes our mental, physical, and social well-being, is affected by various aspects of our daily routines. In summary, our study has shown an inverse relationship between extended screen time and quality of life, while a positive association was observed between heightened physical activity levels and improved quality of life. Notably, our findings underscored gaming as the prevailing form of screen engagement among the participants. Two notable factors that can be adjusted quite easily are the amount of time spent on screens and the balance between physical activity and sedentary behavior. As a prospective avenue for further research, we propose an exploration of strategies for seamlessly integrating physical activity into gaming experiences, potentially yielding enhancements in overall quality of life. Furthermore, promoting awareness among young adults regarding their screen usage across various devices and its potential adverse effects on their well-being could play a pivotal role in fostering improvements.

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**Authors' contributions** Verena Steiner-Hofbauer: conceptualization, writing – original draft, data curation, writing – review & editing; Beate Schrank: funding acquisition, review & editing; Gloria Mittmann: writing – original draft, writing – review & editing.

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**Data availability** The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

**Code availability** Not applicable.

## Declarations

**Ethics approval** The study was an anonymous online questionnaire study, so no ethics approval was required. The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

**Consent to participate** All participants gave their informed consent at the beginning of the online questionnaire.

**Consent for publication** Not applicable.

**Competing interests** The authors have no conflict of interest to declare.

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