

**Investigation of the Relationship of Social Media Use, Self-control, and Well-being in
Young Adults**

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Abstract

The pervasive presence of social media (SMU) has raised questions on its impact on well-being (WB) and self-control (SC). It is of question to what extent or how SMU contributes to the increase of mental health related struggles in young adults, considering the current popularity of social media platforms. It is of interest whether or to what extent SC can mediate the relationship of SMU on WB in young adults, as this demographic has one of the highest social media adoption rates. It was hypothesised that SMU is associated with lower WB; and that SC mediates the relationship between SMU and WB. In this cross-sectional survey study, 76 young adults between the ages of 18 and 25 participated by completing a set of self-report measures. The measures included the 14-item Warwick-Edinburgh Mental Well-being Scale (WEMWBS) for WB, the 13-item Brief Self-Control Scale (BSCS) for SC, an adapted Social Media Disorder Scale (SMD) for SMU, as well as demographics. The participants were recruited through convenience sampling. The results showed a significant relationship between SMU and WB ($p < .01$). Concerning the second hypothesis, SC did not mediate the relationship between SMU and WB and the effect was statistically insignificant. The complex relationship between SMU and WB may be influenced by a myriad of other factors, such as loneliness, social support, personality traits, or other contextual factors. Experimental or longitudinal studies, complimented by objective measures to prevent response bias, are recommended for future investigation on the impact of SMU on WB.

Keywords: Social media use, self-control, well-being, young adults, cross-sectional survey

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Investigation of the Relationship of Social Media Use, Self-control, and Well-being in Young Adults

The rise of social media affects young adults in myriad ways. On the one hand, social media such as Instagram, Facebook, or Twitter offer vast possibilities to connect with others, to learn something new, to entertain oneself, or to self-express (Kietzmann et al., 2011). On the other hand, a considerable body of contemporary research indicates that social media use can have detrimental effects to one's mental health, such as a heightened risk for depression and anxiety, a negatively affected body-image and self-esteem, feelings of social isolation, as well as sleep problems (Kuss & Griffiths, 2017; Levenson et al., 2016). Given that 20% of adolescents and young adults are affected by a mental illness, of which depression and anxiety are the leading disorders (WHO, n.d.), it gets clear that factors influencing well-being in young adults need to be investigated to find out whether or to what extent they contribute to the rise of mental health issues. Since a body of research indicates a negative association between social media use and well-being, it is of interest if self-control can significantly impact the relationship between social media use and well-being. If this is the case, constructive interventions as a measure against the detrimental effects of social media use on well-being might be mitigated through promotion of self-control measures. One of the potential factors might be self-control, which will be investigated in this study. This paper will explore the relationship of well-being, social media usage and self-control to find out whether self-control mediates the relationship between social media use and well-being.

Well-being

As a young adult, having a positive outlook on life holds the potential for a more pleasant transition into a stable adulthood. As a comprehensive definition of well-being, the World Health Organization states that "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." (WHO, n.d.). The physical, mental, and social dimensions of an individual dictate the evaluation of their general well-being. Consequently, the multidimensional nature of well-being involves an array of subjective evaluations an individual has to make based on their internal and external experiences. Since the evaluation of one's level of well-being is a highly subjective process, it is of value to know how individual differences impact this evaluation. This is because well-being in general is an influential aspect in an

individual's life, as it can contribute to an improved ability to cope with life stressors and adversities, improved cognitive abilities, better mental health and heightened overall happiness (Diener & Chan, 2011; Fredrickson & Tugade, 2003; Fredrickson & Branigan, 2005). The dimensions of well-being (WB) that will be assessed in this study encompass eudaimonic and hedonic WB, as well as aspects of psychological functioning. Eudaimonic well-being refers to well-being in relation to having a life purpose, fulfilling one's own potential and psychological functioning, whereas hedonic WB refers to WB experienced through feelings of pleasure and other positive emotions (Ryan & Deci, 2001). As already mentioned, well-being goes beyond the absence of disease and incorporates positive aspects as well. The aspects of well-being covered in this study are positive affect, satisfaction with life, self-esteem, autonomy, competence, personal relationships, sense of control, realisation of potential, and emotional regulation (Warwick, 2021). Taking into consideration that well-being has positive effects on academic success and a myriad of other factors, it is of value to know how social media influences positive well-being in young adults.

Social Media Use

Since the emergence of social media networks, constant availability, endless scrolling, and instant gratification seem to dictate the lives of many keen smartphone users. Social media networks are platforms that give its users the opportunity to share and access content in a variety of formats as well as to connect with others on a global scale (Kietzmann et al., 2011). Social media is inherently interactive and can serve the user in multiple ways. According to Kuss & Griffiths (2017), there is a distinction to be made in research between social media use and social networking. *Social media use* (SMU) refers “[...] to the web 2.0 capabilities of producing, sharing, and collaborating on content online [...]”, whereas *social networking* (SN) “[...] is particularly focused on connecting people [...]” (Kuss & Griffiths, 2017, p. 2). Hence, social networking describes a different type of use of social media, however it ultimately depends on the user to what extent they utilise the technological tools at hand to connect with others. Because the classification of what is considered to be SN and what is considered to be SMU might be highly blurred for the individual user (i.e. as they might perceive collaboration on content as a social networking activity), this paper will classify social networking as a part of social media use.

Some positive effects of social media on well-being are realised through social connection and support, self-expression, community building, or through mental health campaigns on those platforms (Coulson et al., 2007; Ellison et al., 2014; Moreno et al., 2014; Wang et al., 2014). However, since social media platforms are also designed to keep their users engaged through strategies, such as notifications, infinite scrolling, targeted advertisements, gamification, and personalisation, the users are manipulated by a habit-forming design (Castellucia et al., 2017; Fitts & Metcalfe, 2015; Karapanos et al., 2016; Kosinski et al., 2013; Werbach & Hunter, 2012). This habit-forming design can pose a risk as it encourages excessive and problematic use. A multitude of studies have pointed out the adverse effects of high social media usage on well-being (Hussain & Griffiths, 2018; Paakkari et al., 2021; Uhls et al., 2017). Taking the contrasting effects into account, it seems to be of value to investigate how varying levels of social media usage may influence an individual's degree of well-being.

Problematic social media use (PSMU) encompasses its excessive and compulsive use, which can manifest in an addiction for some individuals (Kuss & Griffiths, 2017). Problematic social media use and disordered social media use are overlapping constructs, however disordered social media use (DSMU) describes a more severe form of social media use (SMU) that is accompanied by addiction-like behaviours (Griffiths, 2009), such as excessive use and mood modifications, salience, tolerance, withdrawal, conflict and relapse as a result of PSMU. Here, salience refers to a preoccupation with SMU, meaning that the user can be totally absorbed by the present online environment. Tolerance means that the problematic social media user has to spend increasing amounts of time on social media networks without experiencing withdrawal symptoms. Lastly, PSMU can influence interpersonal relationships through conflicts, and an individual affected by PSMU or DSMU may relapse and return to using social media excessively.

Harmful outcomes in mental and physical health can develop as a result of PSMU, and contemporary research suggests that it has an array of negative effects on wellbeing, such as through depressive symptoms, anxiety, poor sleep quality, lower self-esteem (Andreassen, 2015; Woods & Scott, 2016), lower life satisfaction (Boer et al., 2020), disordered eating (Wilksch, 2019), and social isolation (Best et al., 2014). These effects pose harm to an individual's well-being, which highlights the need to investigate the impact of different social media usage rates on well-being. Connecting this information with the findings of Hou et al. (2019), which

indicate that excessive SMU does not always predict PSMU, the use of social media seems to be a double-edged sword with regards to well-being. While social media offers an array of advantages to the individual, the disadvantages of social media use on well-being seem to overpower the advantages. As excessive social media usage is also dependent on context and other factors, such as on individual and cultural differences (Lopez-Fernandez et al., 2017), this study will also examine to what extent individual differences in self-control influence the relationship between (problematic) social media usage and well-being.

Self-Control

Self-control is defined as “the ability to override or change one's inner responses, as well as to interrupt undesired behavioral tendencies and refrain from acting on them.” (Tangney et al., 2008, p.275). Self-control refers to the ability to control one’s own behaviour through inhibitory control, delay of gratification, and task persistence (Kools & van Rooijen, 2018). Inhibitory control refers to the ability to inhibit automatic and unwanted behavioural responses. Delay of gratification describes the ability to resist immediate temptations in favour of attaining a greater award or benefit, which involves the tolerance of short-term discomfort. Lastly, Kools & van Rooijen (2018) described task persistence as the ability to maintain efforts to complete a task despite experiencing challenges. Hence, the ability to control one’s own behaviour seems crucial in the context of social media, considering the habit-forming design and the amount of temptations that are offered by the social media networks.

High social media usage and a lack of self-control has been associated with technostress, which can impact the well-being of the SNS users. Technostress is defined as a type of stress that is caused by technology itself, such as through information overload, interruptions and constant availability (Tarafdar et al., 2019). Tarafdar et al. (2007) found that technostress is inversely related to productivity, which proposes to be a burden to young adults. Especially among students it was found that technostress can affect important life outcomes. (Laumer & Maier, 2021; Whelan et al., 2022). However, the point where individuals are negatively affected by technostress differs from person to person and is dependent on a multitude of factors. Research suggests that there is a bidirectional relationship between social media usage and self-control, meaning that individuals with a high degree of self-control are better able to resist urges related to social media usage; and that people that use social media excessively are more likely to impact

their ability to self-control through excessive demands and constant interruptions through SNS (Hofmann et al., 2012; Rosen et al., 2013).

Research has shown that self-control can positively influence social media use in multiple ways. Hofmann et al. (2012) reported that individuals with higher levels of self-control tended to engage in more controlled social media usage, meaning that they were better at regulating the time they spent on social media and were more likely to resist impulsive urges to check social media. Self-control plays a crucial role in managing impulsive urges, as individuals high in self-control are better able to resist immediate gratification (Tangney et al., 2008). In the context of social media, resisting instant gratification can be considered as a constant challenge that is further complicated by an addictive design. However, a high degree of self-control can contribute to a more healthy approach towards social media in two other ways. Self-control may reduce the impact of SMU on WB through more effective emotional regulation, less negative comparisons, and regulation of their responses in the online environment (Du et al., 2012). Additionally, individuals high in self-control engage in more goal-directed behaviour that aligns with their values and priorities (Duckworth et al., 2011). This can also extend to SMU, which means that these individuals may engage in more meaningful and goal-oriented SMU that might not impact well-being as much as for example purely recreational usage.

Summarising self-control, it may act as mediator in the relationship between social media use and well-being by influencing how individuals engage with social media. Self-control can influence the individuals' pattern of SMU through controlled usage, emotional regulation, impulse control, and goal-directed behaviour. As the studies in the abovementioned paragraph reported, a higher level of self-control is associated with a better regulation of one's social media behaviour and a tendency towards a more intentional use, which can mitigate the negative effects of SMU. This can positively influence the well-being of the individuals and lead to better psychological outcomes, which accentuates the importance of investigating the mediating role of self-control on SMU and WB. By understanding its role, interventions can be developed to promote a more healthy approach towards SMU and decrease the chances of problematic SMU patterns.

This Study

After presenting the contemporary findings in relation to well-being, social media use and well-being, the following research question will be central to this paper: "What is the

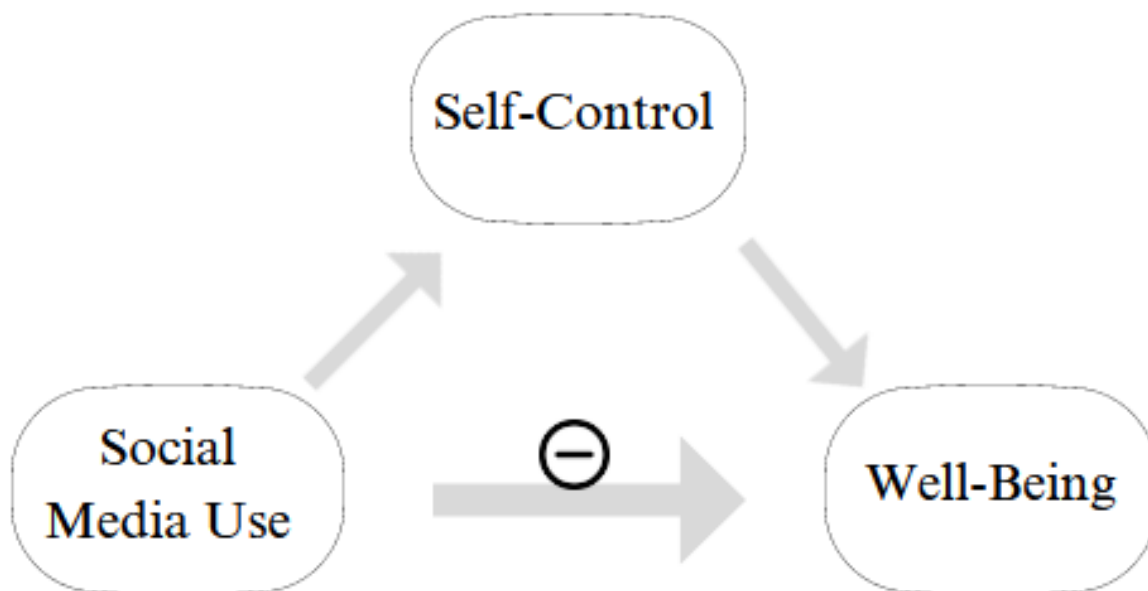
relationship between social media use, well-being, and self-control in young adults?”. This study focuses on young adults, as this population especially has very high adoption rates in social media usage as mentioned by the Data Reportal (2023). It is of value to know how strongly social media usage can affect well-being, and also if self-control can mediate the relationship between SMU and WB. This study aims to explore the gap in contemporary research where only a few have specifically investigated the mediating role of self-control on the relationship between social media use and well-being. Exploring the impact of individual differences in self-control levels and social media usage rates on well-being offers implications for future research and interventions in the public health sector as to maintain or improve a population's overall health. Beneath, the associated hypothesis of the research question are presented, as well as a depiction of the expected relationships (see Figure 1).

Hypotheses

1. Social media use negatively affects well-being.
2. The effect of social media use on well-being is mediated by self-control.

Figure 1

Visual Representation of the Expected Relationships



Methods

Design

This was a descriptive, cross-sectional study that aimed to investigate the relationship of well-being as the independent variable, social media use as the dependent variable, and self-control as the mediator variable in a sample of young adults.

Participants

In total, 76 participants were recruited through convenience sampling. The inclusion criteria for participation was to be aged between 18 and 25, as this study intends to investigate the interrelated effects of well-being, social media use and self-control in the population of young adults. Participants needed to understand English as the survey was administered in English, additionally they needed a device like a phone or laptop with internet connection to fill out the survey. A majority of the participants were incentivised to participate through credits that are granted after the completion of a survey that was distributed via a test subject arrangement. The rest of the participants, mainly those not coming from the University of Twente, were recruited through convenience sampling through the social media channels of the researcher without any incentives. Of 95 participants, only 76 met the inclusion criteria and answered all questions. The mean age of the sample was 21.2 ($SD = 1.73$). Concerning sex distribution, 31.6% of men, 67.1% of women, and 1.3% of intersex participated. A majority of the participants were university students, with a proportion of 85.5% ($n = 65$).

Materials

The survey consisted of four components to assess the different constructs. For well-being, self-control, and social media use, already existing questionnaires with good validity and reliability were chosen. Additionally, some demographic data was queried. The questionnaire can be found in Appendix B.

Demographic Questions

The participants were asked to fill out their age, sex, nationality, and occupation to obtain demographic information. For age, the participants had to fill out their age manually. With regards to sex, participants were able to choose between “male”, “female”, “intersex”, and “prefer not to answer”. The researcher decided to focus on biological sex, but gave the participants the option not to answer because of increasing sensitivity on the subject of sex and gender. Concerning nationality, participants were able to choose between the Netherlands,

Germany, and an option where they could fill out their nationality manually. The reason for this decision was convenience for participants as well as the researcher, as most anticipated students were coming from the Netherlands and Germany. For occupation, the provided options were “student”, “employed full time”, “employed part time”, “self employed”, “unemployed and actively seeking work”, “unemployed and not actively seeking work”, “homemaker”, “disabled”, “retired”, and “other”, where the participants could specify if none of the options were fitting.

Well-being

To measure the independent variable well-being, the 14-item Warwick-Edinburgh Mental Well-being Scale (WEMWBS) was utilised (Warwick, 2021). In this questionnaire, the participants have to indicate how often they have experienced certain feelings in the past two weeks on a 5-point Likert scale ranging from “None of the time” to “All of the time”. Examples of such questions are “I’ve been feeling optimistic about the future.”, “I’ve been dealing with problems well.”, and “I’ve been interested in new things.”. The WEMWBS is a holistic assessment of well-being, which means that the original scale does not intend to measure subdomains specifically. The scale incorporates measures of positive well-being such as positive affect (cheerfulness, relaxation, optimism), interpersonal relationships, and psychological functioning, which includes elements such as autonomy, personal growth, self-acceptance, and competence. To calculate the overall score, all item values (“None of the time” = 1; “All of the time” = 5) needed to be added together. Hence, the lowest score is 14 and the highest score 70. A low overall score indicates low well-being, a high score vice versa.

With regards to psychometric properties of the WEMWBS, Tennant et al. (2007) reported a Cronbach’s alpha of 0.89 for a student sample and 0.93 for a population sample, which can be considered as good to excellent. For test-retest reliability, Tennant et al. (2007) reported a value of 0.83 after one week in a student sample, which is excellent. With regards to validity, Tennant et al. (2007) concluded that the WEMWBS has a good criterion validity, as well as a good construct validity. This study reported a cronbach's alpha of 0.89. To use the WEMWBS, the researcher was required to register to the Warwick Medical School in order to get granted access, as the copyright-protected WEMWBS requires a licence of use (Warwick, 2021).

Social Media Use

For the assessment of the social media use of the participants, a modified and shortened version of the 9-item Social Media Disorder scale (SMD) by van Eijnden et al. (2016) was used.

The modifications included the answering options, which were changed from yes/no to a 5-point Likert scale. This modification was made to capture a more nuanced understanding of the participants' social media use, as that way, the participants were able to base their answer on a continuum, instead of a dichotomy. Additionally, the items were reduced to each represent the aspects of preoccupation, tolerance, escape, persistence, problems, and conflict. In total, six items represented the scale. For this SMU scale, the participants had to indicate on a 5-point Likert scale ranging from "Very rarely" to "Very often" how frequently some of their social media use behaviours occurred in the last month. Examples of such items are "Tried to cut down on the use of social media without success?" or "Become restless or troubled if you have been prohibited from using social media?". For the calculation of the total score, all items would be added up. The highest possible score is 30, the lowest is 6. Concerning the psychometric properties, the SMU scale of this study exhibits a cronbach's alpha of .84, which can be considered as good.

Self-Control

To measure the degree of self-control the participants exhibit, the 13-item Brief Self-Control Scale (BSCS), developed by Tangney et al. (2008), was utilised. It is a common measure of self-control and some other studies tried different factor structures to improve the prediction of outcomes, but were rather unsuccessful (Manapat et al., 2019, Fung et al., 2020). Hence, with the BSCS in this study, self-control is measured as a unidimensional construct and will not incorporate subscales. Participants needed to indicate their answer on a 5-point Likert scale, ranging from "Not at all like me" to "Very much like me". Example items are "I am good at resisting temptation.", "I refuse to do things that are bad for me.", and "Sometimes I can't stop myself from doing something, even if I know it is wrong.". The lowest possible score is 13, the highest 65. With regards to the psychometric properties, the BSCS exhibits good values. For Cronbach's alpha, Tangney et al. (2008) report a value ranging from .83 and .85, which can be considered as good. The test-retest reliability of the BSCS was .87, which is also good. This study reported a cronbach's alpha of .86 for its self-control scale. Concerning validity, the Brief Self-Control Scale exhibits good discriminant, convergent, and even predictive validity. It was found that the BSCS positively correlates with self-regulation (Tangney et al., 2008), which is an overlapping concept to self-control.

Procedure

The survey was administered through Qualtrics, which is a web based survey software that allows construction of surveys without any knowledge of programming. Before administration, ethical approval was obtained by the Ethics Committee of the University of Twente (application number: 230316). The survey was published on the 21st March of 2023 and ended on the 24th April of 2023. Most university students were recruited through SONA, a test subject arrangement of the University of Twente that requires their students to complete a specific amount of survey to gain credits that are required to complete a study programme at the university. Other participants were recruited via the researchers social media channels, where the participants could directly get to the survey via a hyperlink.

The first section of the survey briefly explained the content of the study, after which the informed consent was explained. In the informed consent, the participants were informed about their rights and that confidentiality and anonymity will be ensured in this study. The participants had to agree to the consent in order to continue with the study. After that, demographic data such as age, sex, occupation and nationality was obtained. Well-being, social media use, time spent on social media, and self-control were queried in this order. Lastly, a debriefing was included. To decrease the amount of missing data, a forced response option was set up in Qualtrics. After the data collection, the raw data file got stored in Google Drive of the researchers' university account and in the BMS Datavault of the University of Twente, which both are GDPR compliant.

Data Analysis

To analyse the data, R Studio version 4.0.3 was utilised. First, the dataset was prepared by removing missing cases and invaluable variables that are automatically added by Qualtrics. Only participants that answered every question accordingly and fulfilled the inclusion criteria were part of the final data analysis ($n = 76$). To prepare the scale of self-control, four items needed to be reversed from positive to negative. The scales needed to be constructed for well-being, self-control, and social media use.

Furthermore, the statistical assumptions of normality, independence, linearity, and equal variance were tested. For the assumption of normality, the Shapiro-Wilk test was conducted for the scales of self-control, well-being, and social media use. Additionally, the data was visually inspected and checked for outliers with density plots and boxplots. For the assumption of independence, the variables were examined using the boxplot function. To test linearity,

scatterplots were made for the dependent (WB), independent (SMU) and mediator (SC) variable. With regards to equal variance, a Levene's test was conducted. Concerning reliability and internal consistency, the scales were examined using Cronbach's alpha. The descriptives for all variables were investigated.

For the first hypothesis, "Social media use negatively affects well-being.", a linear regression analysis was conducted with well-being as the dependent variable and social media use as the independent variable. With regards to the second hypothesis "The effect of social media use on well-being is mediated by self-control.", a mediation analysis was conducted with well-being as the outcome variable, social media use as the predictor variable and self-control as the mediator variable. Especially the direct vs. indirect effect, as well as the total effect of the mediation model were of interest to answer the second hypothesis.

Results

Descriptive Statistics

The statistical assumptions of normality, independence, linearity, and of equal variance were tested. The assumption of normality was checked using the Shapiro-Wilk test. The variables well-being and social media use showed normal distributions ($W(76) = .98, p = .34$; $W(76) = .98, p = .19$). However, the variable self-control revealed a slight departure from normality ($W(76) = .97, p = .04$). A logarithmic transformation on the self-control scale yielded a worse p-value, which led to the decision of keeping the SC variable as it is and utilising bootstrapping technique for the mediation analysis, since mediation analysis can be considered as quite robust towards the assumption of normality (Hayes, 2018).

To assess the assumption of equal variance or homogeneity, a Levene's test was conducted for the variables WB, SMU, and SC (see Appendix C). The interaction of age, sex, and nationality were included as grouping variables. For well-being $F(28, 47) = .92 (p = .58)$, self-control $F(28, 47) = .87 (p = .65)$, and social media use $F(28, 47) = 1.21 (p = .28)$, no significant differences in variance among the groups could be identified. Hence, the assumption of equal variance was met for all variables. The assumption of independence for all relevant variables was tested using boxplots (see Appendix D), the assumption of linearity was tested using scatterplots (see Appendix E). All variables followed a normal distribution and hence, the statistical assumptions were met.

The descriptive statistics, including means, standard deviations, minimum and maximum, and Pearson's correlations are provided in Table 1 below. The correlation analysis revealed significant correlations between the variables of social media use, well-being and self-control. Social media use and well-being were negatively correlated ($r = -.28^*$, $p < .05$), which indicates that higher levels of SMU are associated with lower levels of WB. Well-being and self-control are also negatively correlated with a correlation coefficient of $-.24^*$ ($p < .05$), which suggests that higher levels of self-control are associated with higher levels of well-being. Also, it was found that older participants tended to have higher levels of social media use, as age showed a weak positive correlation with SMU ($r = .11$, $p < .05$). A positive correlation between social media use and self-control could be observed ($r = .49^{**}$, $p < .01$), suggesting that individuals high in self-control tended to engage in higher levels of social media use. It was also found that older participants tended to have higher levels of social media use (see Appendix D).

Table 1

Descriptive Statistics and Pearson's Correlations

	Mean	SD	Min	Max	Well-being	Social media use	Self-control	Age
Well-being	47.05	8.47	27	67	1	-.28*	-.24*	.05
Social media use	16.41	5.67	6	29	-.28*	1	.49**	.11
Self-control	38.53	9.3	19	57	-.24*	.49**	1	.21
Age	21.2	1.73	18	25	.05	.11	.21	1

Note. *. Correlation significant at the 0.05 level. **. Correlation significant at the 0.01 level.

Hypotheses

Hypothesis 1

To answer the hypothesis “Social media use negatively affects well-being.”, a linear regression analysis was conducted with social media use as the independent variable and well-being as the dependent variable. The results show a significant effect $t(74) = -2.46$, $p = .016$ of social media use on well-being. For social media use, the regression coefficient was $-.41$ ($SE =$

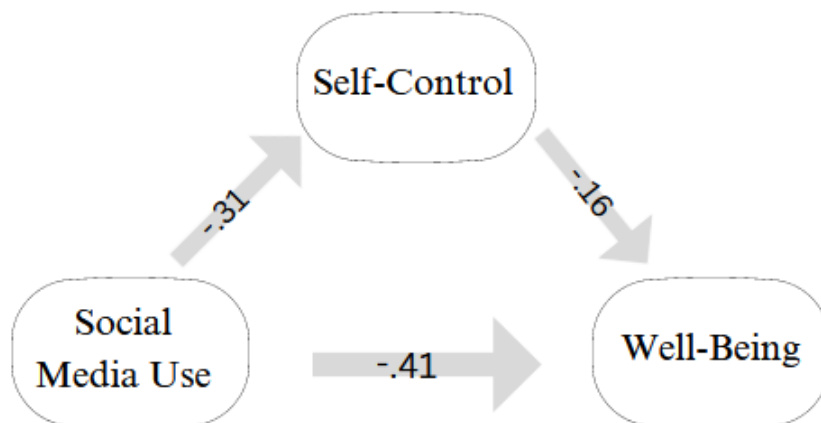
.16), which indicates that for each unit increase in SMU, WB decreases by .41 units. The model accounted for a small proportion of variance in WB ($R^2 = .08$). Hence, the first hypothesis can be accepted.

Hypothesis 2

To answer the hypothesis “The effect of social media use on well-being is mediated by self-control.”, a mediation analysis was conducted with SMU as the predictor, WB as the outcome, and SC as the mediator variable. The effects can be observed in Figure 2 below. The hypothesis was tested using a nonparametric bootstrap approach with 76 participants and 1000 simulations. The overall significance was good ($R^2 = .262$, $F(1, 74) = 8.41$, $p < .01$), and the model explained 25.6% of the variance in well-being. It was found that the effect of social media use on well-being is significant with a total effect of SMU on WB ($b = -.41$, $p < 0.01$). The average causal mediation effect (ACME) was $-.11$ ($CI = [-.35, .09]$, $p = .27$), which suggests that the mediation effect of self-control on SMU and WB was not statistically significant. The direct effect of social media use on well-being, controlling for self-control, was $b = .31$ ($CI = [-.63, .11]$), was not significant ($p = .13$). For the proportion of the total effect mediated by self-control, the proportion of mediation was not found to be significant ($b = .26$, $CI = [-.28, 1.59]$, $p = .28$). Hence, the second hypothesis can be rejected.

Figure 2

Mediation Model of Social Media Use, Well-being, and Self-Control



Discussion

This paper investigated the relationship between social media use, well-being, and self-control in young adults. It was hypothesised that social media use is associated with decreased well-being, and the results indeed showed a significant negative relationship between SMU and WB. It was found that with each unit increase in social media use, well-being decreased by nearly half a unit. This aligns with findings of previous studies that showed negative effects of SMU on WB (Paakkari et al., 2021; Hussain & Griffiths, 2018; Uhls et al., 2017). The multifaceted nature of well-being and the variety of ways to interact with social media raise the question of how exactly social media use negatively impacts well-being.

The negative relationship between social media usage and well-being can be attributed to a multitude of factors like previous studies have indicated. Excessive screen time through social media use is associated with disrupted sleeping patterns and decreased well-being (Woods & Scott, 2016). As indicated in the introduction, depressive symptoms, anxiety and other negative effects on well-being may result from SMU (Andreassen, 2015; Woods & Scott, 2016). These negative effects are also to be found in moderate social media users (Lin et al., 2016), which highlights the importance of further investigation on the complex workings of social media use to protect the well-being and health of the growing adult population.

A possible explanation for the negative effects of social media use on well-being is the displacement hypothesis, which states that increased time spent on social media prevents the user from engaging in more meaningful interactions apart from the social media context (Kross et al., 2013). This can explain why even moderate social media usage can negatively impact the individual. Another explanation is the social comparison theory, which postulates that a diminished well-being and lowered self-esteem can result from social comparisons (Tandoc et al., 2015), as social media networks offer vast possibilities to compare oneself to other more successful individuals. Additionally, several moderators may impact this relationship as well, such as age and socioeconomic status. Like in the study of Paakkari et al. (2021), older participants in this study tended to have higher levels of problematic social media use. The potential reasons for this are yet unclear.

With regards to the second hypothesis that stated “The effect of social media use on well-being is mediated by self-control.”, the findings led to the rejection of the hypothesis. The mediation effect was statistically insignificant. One possible explanation for this finding is that

the complexity of that relationship is likely to be influenced by other factors, such as personality traits, social support, self-esteem, fear of missing out, other individual differences, or contextual factors such as intended use of social media (Kuss & Griffiths, 2017; Lee et al., 2020, Kross et al., 2013; Tandoc et al., 2015). These factors may operate independently from self-control, which may explain the insignificance of the mediation effect. These other parallel or indirect factors were not captured in this study and a more holistic assessment of the relationship between SMU, WB, and SC, including those factors, is recommended for future research.

This is especially important considering the link between self-control and problematic social media usage. Tangney et al. (2004) highlighted the importance of self-control in managing impulsive behaviour and addictive tendencies. Kuss et al. (2013) found that a lower degree of self-control is associated with excessive use of social media, which is in contrast to the findings of this study. The reason for these differences have to be explored in further studies to understand the mechanisms of how self-control might impact the social media usage behaviours of different demographics and how factors such as personality traits contribute to that relationship.

Current findings in the realm of social media research has suggested that personality traits such as extraversion and neuroticism moderate the relationship of social media use and well-being (Kuss & Griffiths, 2017). For example, neuroticism may amplify the negative effects of social media use on well-being, such that a high level of neuroticism may increase the risk of being emotionally triggered by social media. On the other hand, extraverts might benefit from interactions in the social media realm. Furthermore, contextual factors, such as the intended use of social media, can also impact the influence of SMU on WB (Lee et al., 2020). Individuals using social media mainly for working purposes might not be as prone to the negative effects of SMU like individuals that utilise social media for recreational purposes most of the time.

Strengths & Limitations

The strengths of this study encompass an adequate sample size, the utilisation of established scales and the psychometric properties of the utilised scales. A limitation of this study is that the scales for social media use, well-being, and self-control were self-report measures, which holds the potential for response biases of the participants. Also, comparability to other studies that utilise the SMD scale by van den Eijnden (2016) is limited because of the adaptations that were executed on the scale. The cross-sectional design offers a good insight into the investigated research question, however an experimental or longitudinal study design can

provide more robust evidence for the findings. Especially since social media networks are quite new and the long-term effects of social media use cannot be entirely anticipated. Furthermore, the sample size was relatively small and the generalizability of the findings is limited since the sample consisted of young adults that are mainly university students and females.

Recommendations for Future Research

For future studies it is advised to favour longitudinal or experimental designs, as well as incorporating more factors into the investigation to get a comprehensive and holistic picture on the effects of social media use on well-being. Also, objective measures, such as behavioural tracking, can provide more robust results in future studies to prevent response bias. As was found in the study by Paakkari et al. (2021) and in this study, it is of value to further explore why older populations tended to exhibit higher levels of problematic social media use. A thorough understanding of the mechanism of self-control in the context of social media may provide valuable insights for interventions against the detrimental effects of social media use. With these insights, educators and psychologists can create interventions targeted at responsible handling of social media to foster digital literacy and to decrease the negative effects of SMU on WB. By promoting strategies to increase the utilisation of self-regulation strategies to increase an individual's level of self-control, social media users may reduce the potential negative impact of social media on their well-being and overall health and even academic success.

Conclusion

The cross-sectional investigation of the relationship of social media use, well-being, and self-control provided some valuable insight into the impact of increased social media use on WB. It was hypothesised that SMU negatively affects WB, which got confirmed by the results of this study. However, no significant mediation effect of self-control on the relationship between SMU and WB could be observed. Potential other parallel or indirect factors may have a more significant impact on the relationship, such as personality traits, social support, or contextual factors. Hence, the complex interplay between social media use, well-being and self-control requires further investigation, ideally with longitudinal design studies incorporating several of the mentioned factors. Objective measures and experimental designs might give more fruitful insights into this complex. The findings of this study contribute to the growing body of evidence for the negative effects of social media use on well-being, which highlight the importance of continuing research on this complex dynamic. Through understanding that dynamic, future

interventions to decrease problematic social media usage in young adults can be constructed to limit the detrimental effects of SMU on well-being.

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Appendix A

Informed Consent

Dear participant,

In this survey, your well-being, self-control, and (problematic) social media usage will be assessed, in addition to obtaining some demographic data. The study intends to analyse the relationship of the above-mentioned dimensions in order to assess whether self-control could be a deciding factor and/ or starting point for future interventions against problematic social media use. The data is obtained for module 12 for the psychology bachelor thesis with the theme “Investigating the relation between social media use and Mental Health”.

The survey will take you approximately 10 to 15 minutes to complete.

The participation in this survey is entirely voluntary and you can withdraw at any time. Prior to the analysis of the data, all personal data will be anonymised and will only be used for research purposes. The obtained information will remain confidential and is only shared with the supervisor of the thesis.

- I have read and understood the study information.
- I consent voluntarily to be a participant and I know that I can withdraw from the study at any time.
- I understand that taking part in the study involves answering questions honestly.
- I understand that the information I provide will be used for research purposes only and that my participation is completely anonymous.
- Incomplete responses might be excluded during the data analysis.

- Agree
- Disagree

Appendix B Questionnaire

Demographic Questions

What is your age?

What is your sex?

- Male
- Female
- Intersex
- Prefer Not to Answer

What is your nationality?

- Dutch
- German
- Other (please specify)

What is your occupation?

- Student
- Employed - full time
- Employed - part time
- Self-employed
- Unemployed and actively seeking work
- Unemployed and not actively seeking work
- Homemaker
- Disabled
- Retired
- Other (please specify)

Well-being

Please indicate how often you have experienced each of these feelings or emotions over the past two weeks:

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been feeling useful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been feeling relaxed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been feeling interested in other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've had energy to spare.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been dealing with problems well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been thinking clearly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been feeling good about myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been feeling close to other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been feeling confident.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been able to make up my own mind about things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been feeling loved.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been interested in new things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been feeling cheerful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Social Media Use

Please rate the frequency of your social media behaviours of the last month on the following scale:

	Very rarely	Rarely	Sometimes	Often	Very often
Spent a lot of time thinking about social media or planned use of social media?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Felt an urge to use social media more and more?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used social media in order to forget about personal problems?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tried to cut down on the use of social media without success?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Becomes restless or troubled if you have been prohibited from using social media?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used social media so much that it has had a negative impact on your job/studies?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Self-control

Please indicate the following:

	Not at all like me	A little like me	Somewhat like and unlike me	Mostly like me	Very much like me
I am good at resisting temptation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a hard time breaking bad habits.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am lazy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I say inappropriate things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do certain things that are bad for me, if they are fun.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I refuse things that are bad for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wish I had more self-discipline.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People would say that I have iron discipline.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pleasure and fun sometimes keep me from getting work done.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have trouble concentrating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to work effectively toward long-term goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sometimes I can't stop myself from doing something, even if I know it's wrong.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often act without thinking through the alternatives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix C
Assumption of Equal Variance - Levene's Test

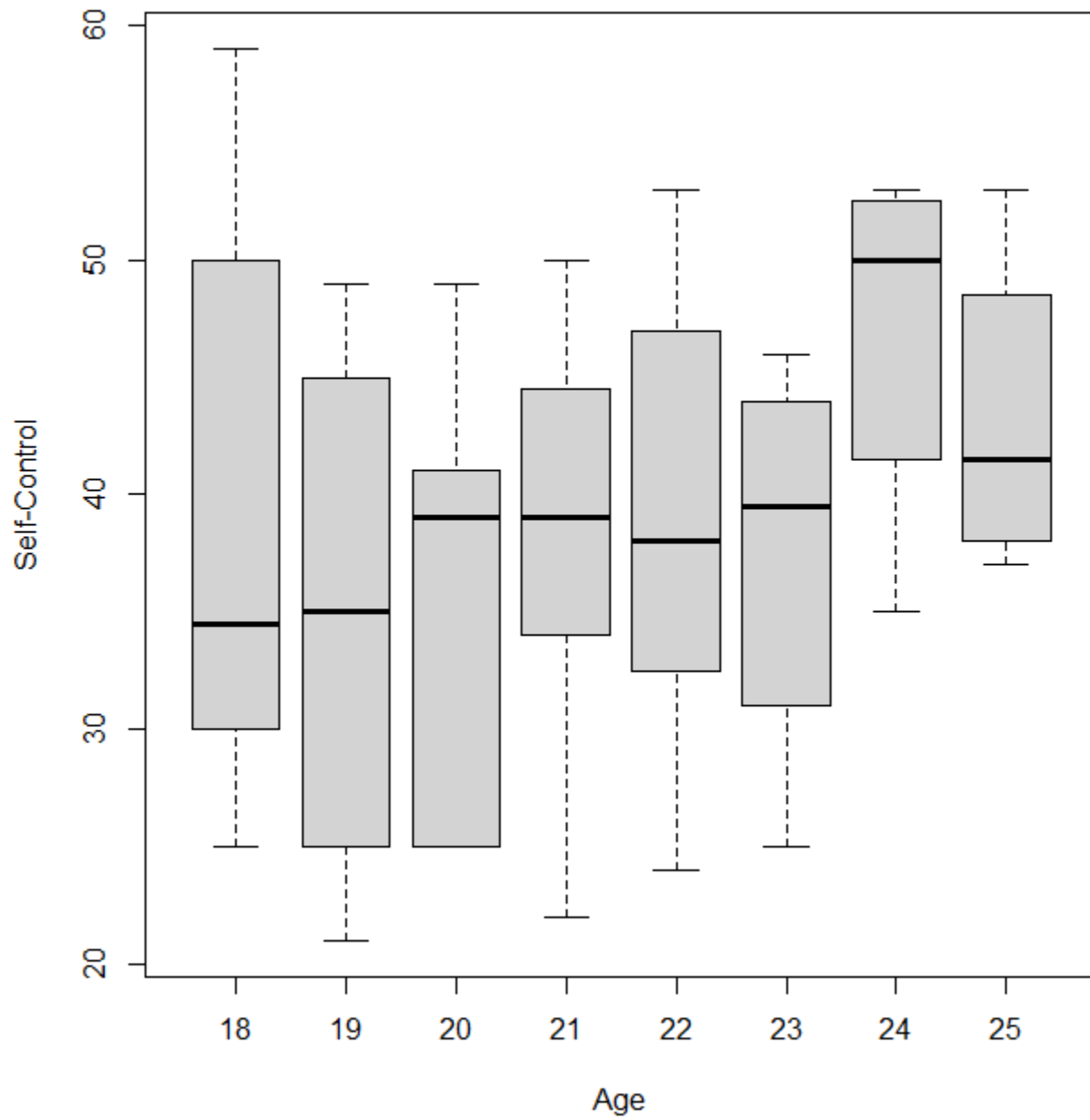
Table 2

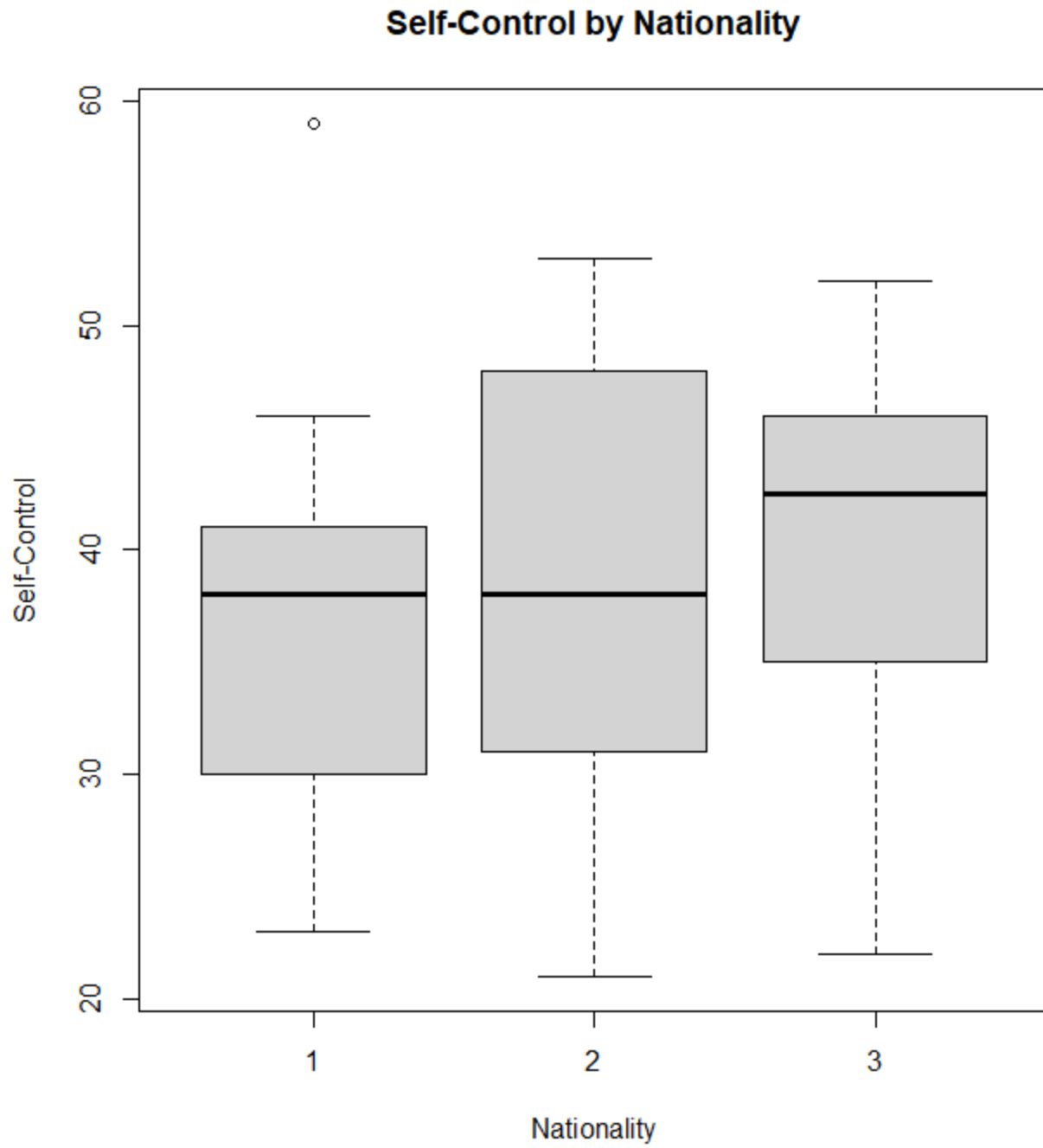
Levene's Test Results for Homogeneity of Variance

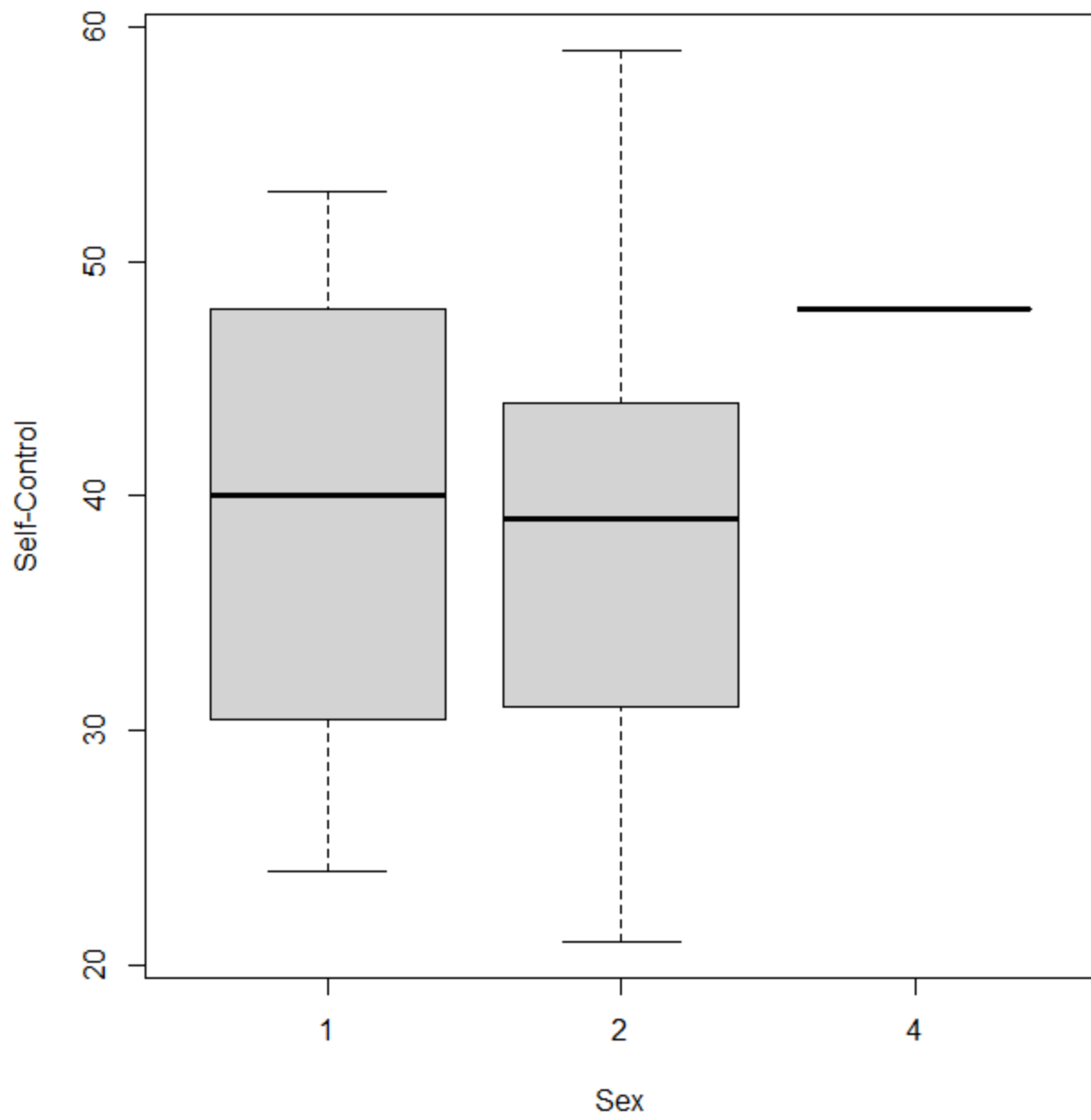
Variable	Df	F value	p-value
Well-being	28	0.9249	0.5794
Self-control	28	0.869	0.6487
Social media use	28	1.2093	0.277

Appendix D
Assumption of Independence

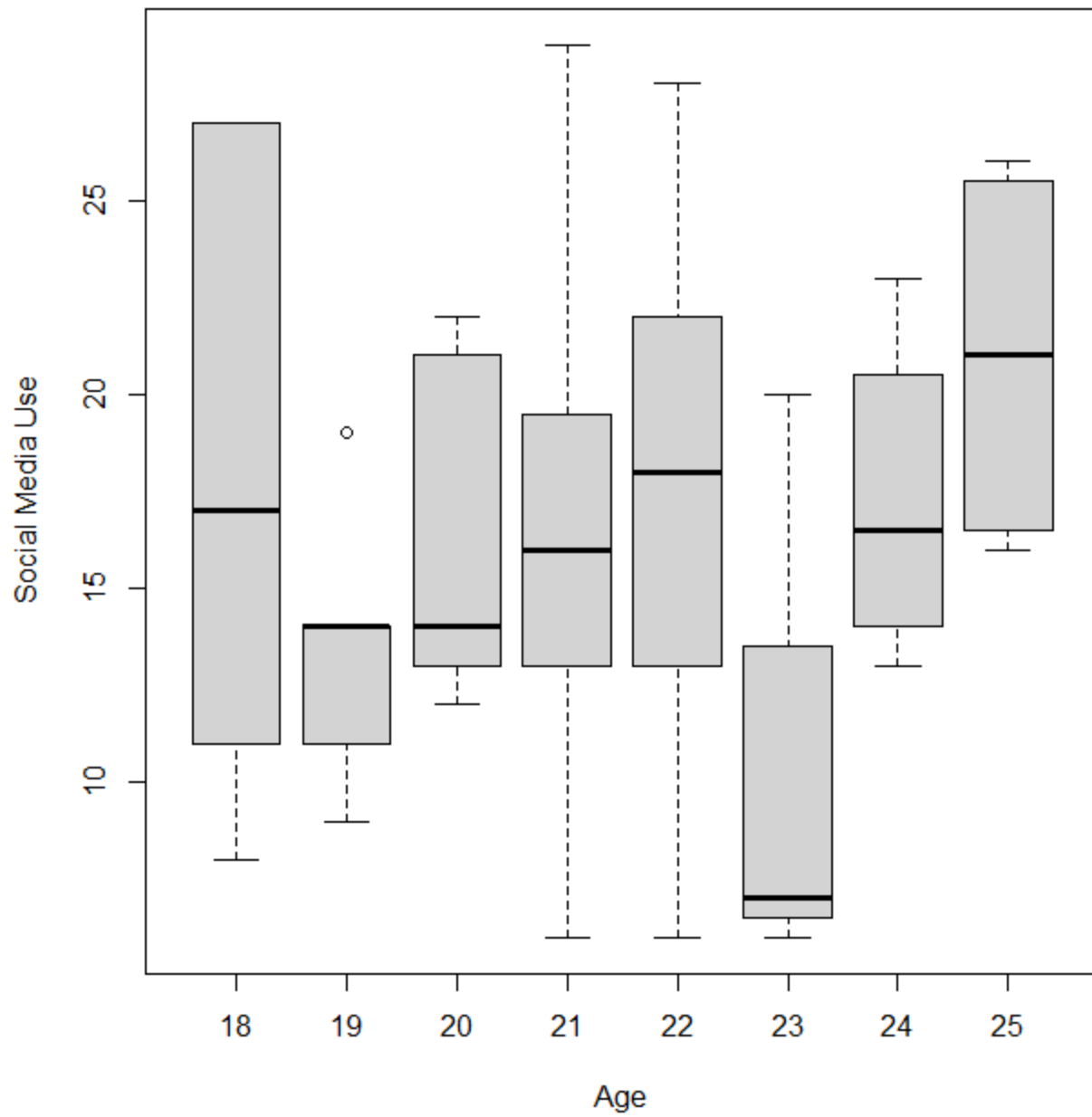
Self-Control by Age



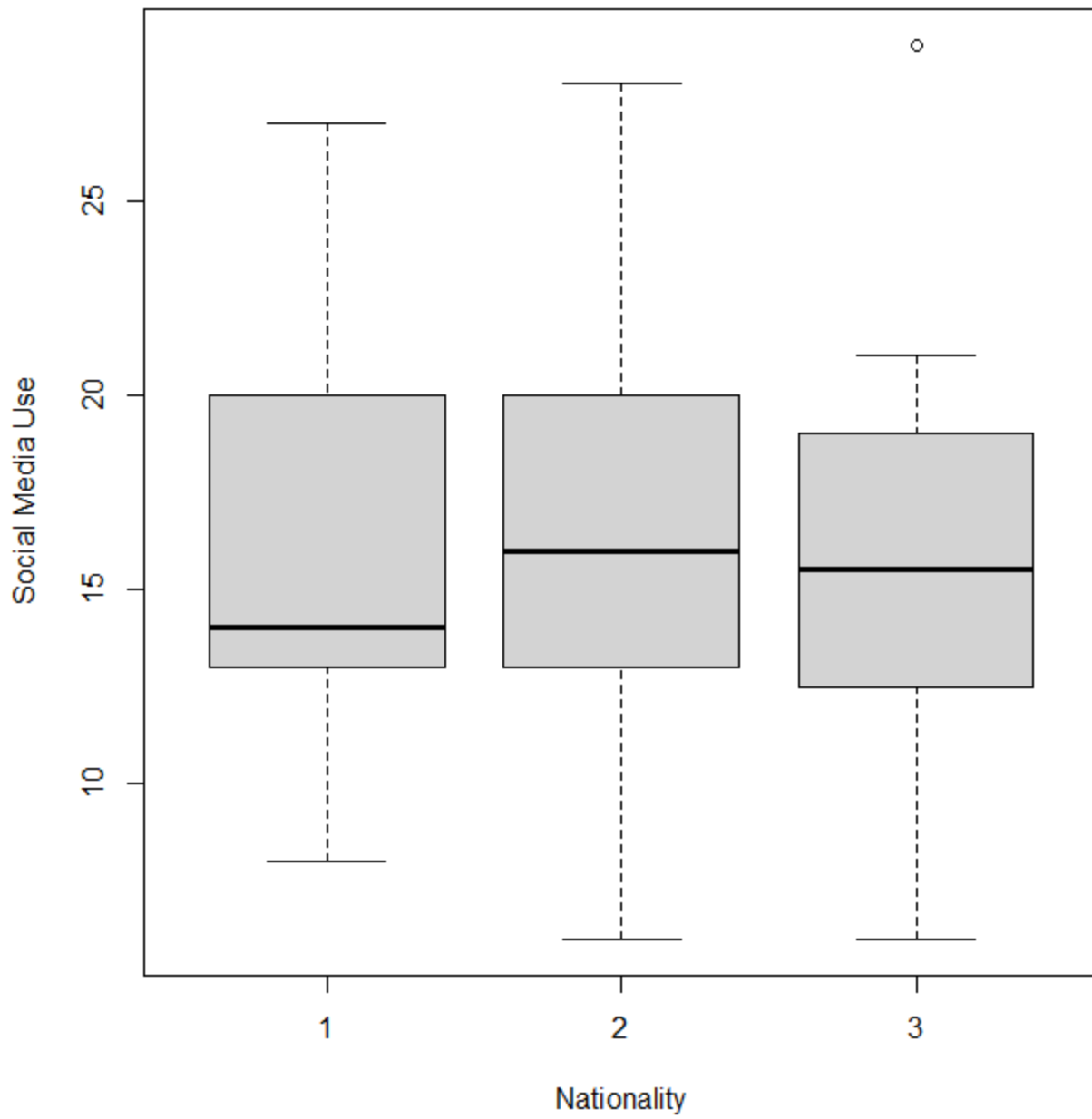


Self-Control by Sex

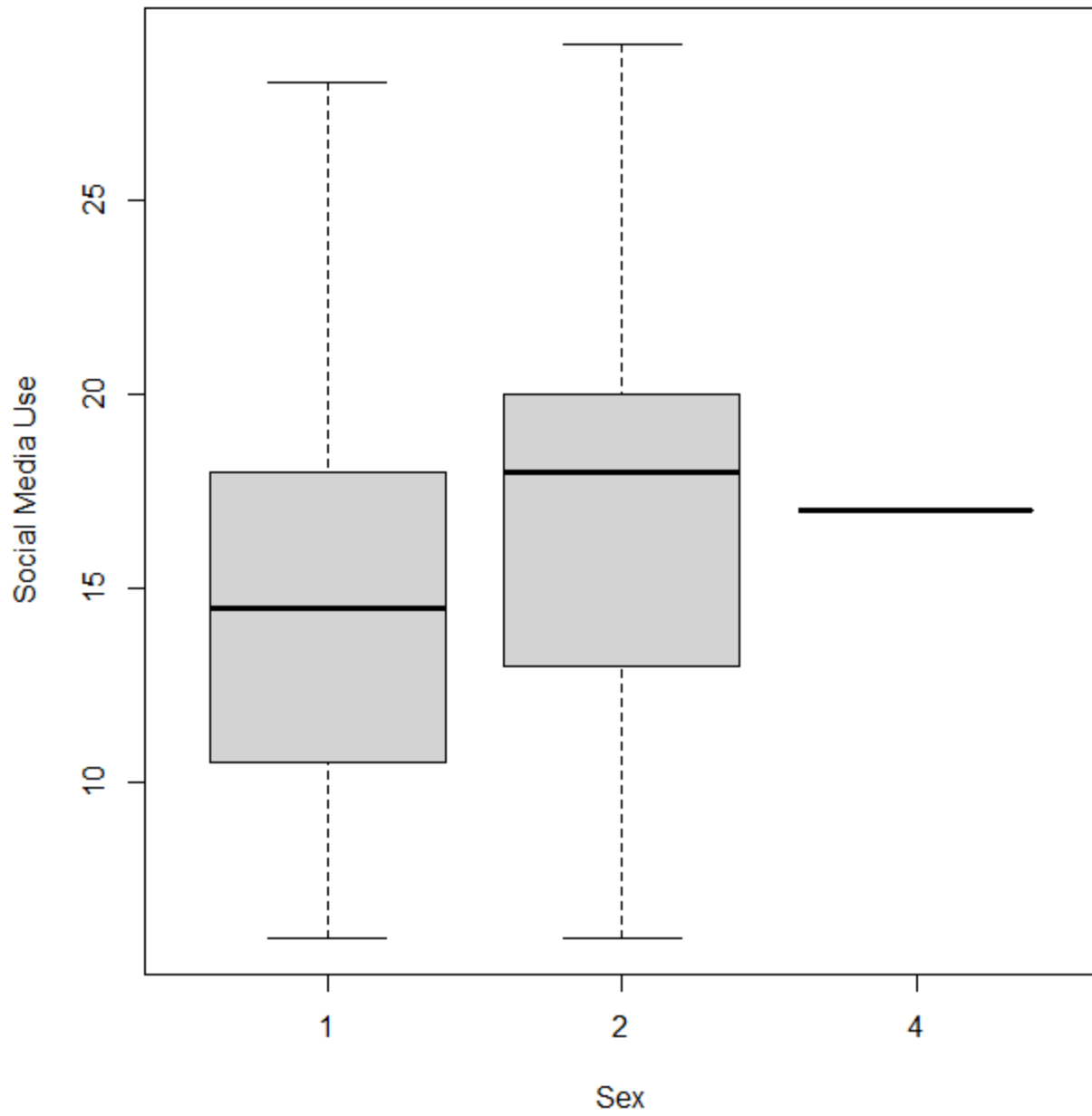
Social Media Use by Age



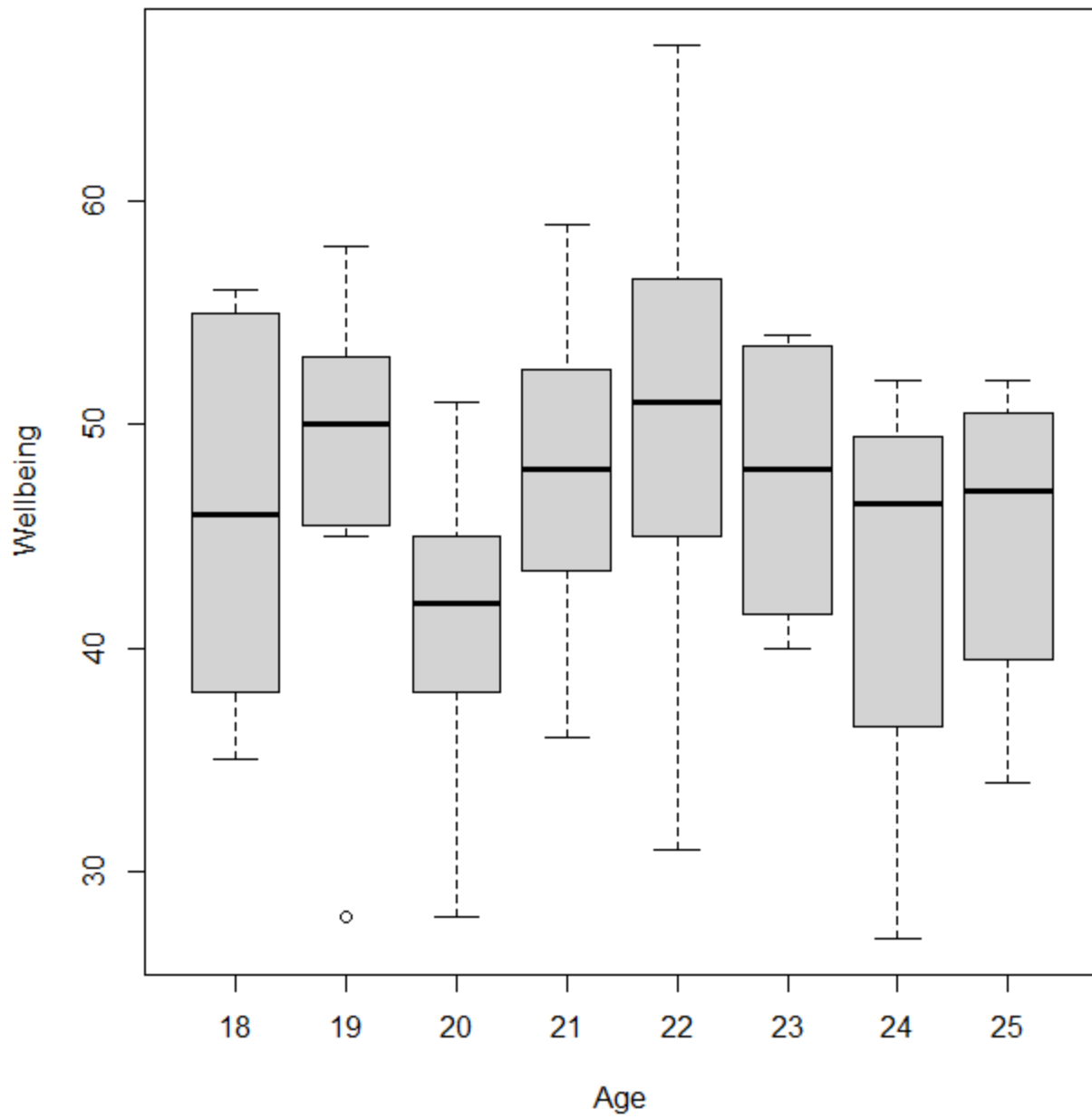
Social Media Use by Nationality



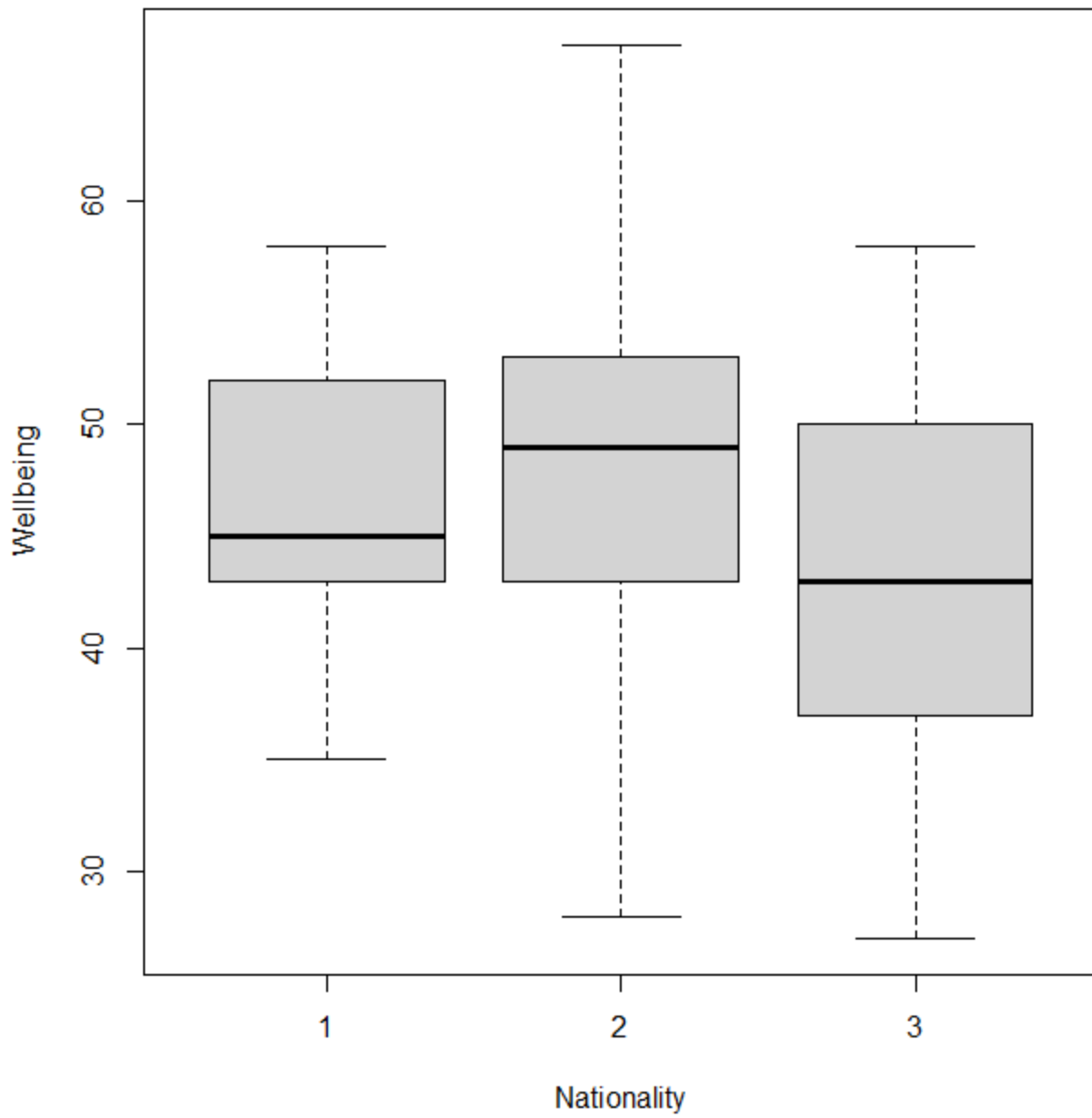
Social Media Use by Sex



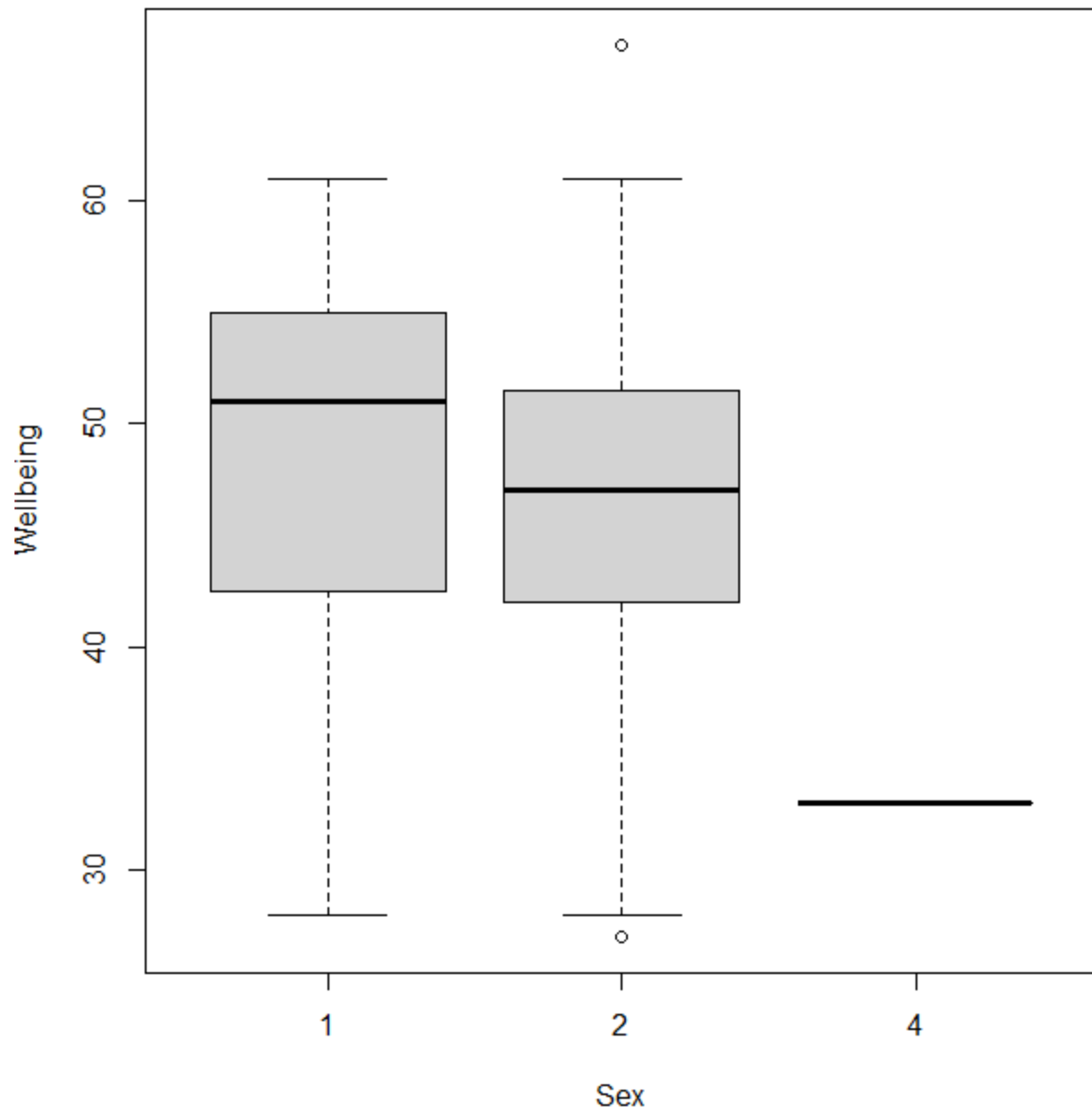
Wellbeing by Age



Wellbeing by Nationality



Wellbeing by Sex



Appendix E
Assumption of Linearity

