



# Personality traits and the risky use of social media in Slovak adolescents

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**Abstract** | Objectives: Despite being a pressing issue, the role of personality traits in the adolescent use of social networks has not yet been researched empirically in Slovakia. The aim of this study is to increase knowledge about the relationship between the tendency to overuse social media, personality traits and self-esteem in a sample of Slovak adolescents. Furthermore, it also confirms the gender differences in the tendency of male and female adolescents to use social media in a risky way. Methods: The research sample comprised 284 Slovak adolescents aged between 15 and 20 years old ( $M = 17.88$ ,  $SD = 1.67$ ); 141 of the subjects were female. The data collection was carried out using the snowball method i.e., by means of a Facebook questionnaire. The research instruments used were the Bergen Social Media Addiction Scale (BSMAS) ( $\alpha = .77$ ), the Mini International Personality Item Pool (Mini IPIP) ( $\alpha = .58-.76$ ) and the Rosenberg Self-Esteem Scale (RSES) ( $\alpha = .83$ ). Results: The correlation analysis revealed three significant relationships in adolescents. Firstly, the relationship between the tendency to overuse social networks and neuroticism ( $\rho = .292$ ); secondly, between the tendency to overuse social networks and conscientiousness ( $\rho = -.241$ ) and lastly, between the tendency to overuse social networks and self-esteem ( $\rho = -.191$ ). The linear regression model showed that two personality traits (neuroticism and conscientiousness) played a role as systematic predictors. Moreover, the gender analysis demonstrated a higher tendency of female adolescents to overuse social networks ( $d$  Cohen =  $-0.455$ ). Conclusion: The study suggests the importance of personality factors such as neuroticism and conscientiousness in explaining the tendency to overuse social media. This supports similar explanatory studies from other countries. The role of personality traits and gender differences may be relevant for designing prevention activities and intervention programmes on risky social networking use in adolescence.

**Keywords** | social networks, Big Five, self-esteem, Slovak adolescents, linear regression, gender comparison

## The risky use of social media

Social media is a platform which facilitates social interaction and entertainment, transforming the everyday life of billions of people. Social networking sites (SNS) are a form of social media which can be described as “virtual communities where users can create individual public profiles, interact with real-life friends and meet other people based on shared interests” (Kuss & Griffiths, 2011, p. 3529). Social networks are currently one of the most popular forms of communication and entertainment on the Internet (GlobalWebIndex, 2018). According to Hootsuite (2019), users spend an average of 2.5 hours a day on them. At the same time however, there is growing evidence that excessive use of social networking sites resembles the symptoms traditionally associated with substance abuse (Andreassen, 2015; Grant et al., 2010; Griffiths et al., 2014; He et al., 2017).

It is estimated that as many as 210 million users are “addicted” to social networks and the Internet (Truelist, 2021). The evidence to date suggests that such an addiction can affect a person’s mental health and their psychosocial functioning as well as having a severe impact on the lives of those closest to them (Andreassen, 2015). The mental health consequences of uncontrolled social media use have been well-documented in both quantitative and qualitative studies (e.g., Atroszko et al., 2018; Grau et al., 2019; Hou et al., 2017; Marino et al., 2018a; Marino et al., 2018b; Pontes, 2017). However, is this really a “new addiction”? Some experts have drawn on the Internet addiction theory (Andreassen et al., 2016; Kuss & Griffiths, 2011; Montag et al., 2014; Müller et al., 2016; van Rooij et al., 2017; Young, 2009) and consider SNS addiction as a type of behavioural addiction. In other words, “being overly concerned about SNSs, to be driven by a strong motivation to log on to or use SNSs, and to devote so much time and effort to SNSs that it impairs other social activities, studies/job, interpersonal relationships, and/or psychological health and wellbeing” (Andreassen & Pallesen, 2014, p. 4054). Based on the Components Model of Addiction (Griffiths, 2005), the symptoms of “SNS addiction” as a new phenomenon (salience/importance, mood modification, tolerance, withdrawal, relapse, and conflict) can be integrated into an already established, more general category of Internet addiction. However, this is not the only conceptual controversy (Andreassen & Pallesen, 2013; Griffiths, 2012). According to the Uses and Gratifications Theory (Katz et al., 1973), the use of any medium is goal-oriented and related to the specific needs underlying it and, in turn, to specific forms of satisfaction. In order to understand how SNS addiction works, it is necessary to have an understanding of platform-specific studies (Ryan et al., 2014). Such studies tie dependency to specific platforms such as Instagram (Kircaburun & Griffiths, 2018), Twitter (Ndasauka et al., 2016) and Snapchat (Punyanunt-Carter et al., 2017). Conversely, other research has taken the position that SNS addiction is not platform-specific and should be understood as a more general phenomenon (e.g., Tang & Koh, 2017; Wang et al., 2018), within which so-called site-specific addictions are only particular cases (Griffiths et al., 2014; Kuss & Griffiths, 2017). As the debate about the existence/non-existence of “SNS dependency” or its distinctive concepts is ongoing, the current study prefers to use the terms “excessive” or “risky” use of SNS rather than the term “addiction” throughout the paper.

### Personal boundaries of risky social media use

The risky or excessive use of social network is an individual issue. Since the 1980s, a paradigm based on the interaction among situational and dispositional factors has been used to explain behaviour. While situational factors are variable, dispositional factors are usually weaker with a more systematic influence. Traditionally, a 5-factor personality trait model is used for the description of one’s behaviour (John, 1990; McCrae & Costa, 2008). The “Big Five” model has identified extraversion, agreeableness, conscientiousness, neuroticism and openness to experience as the main personality traits. While the literature makes frequent reference to these traits, the

definitions slightly vary (e.g., DeNeve & Cooper, 1998, John & Srivastava, 1999, McCrae & Costa, 2008) and have become more specific with the development of new instruments. As for the most recent resources, John and Robins (2021) have published the BFI-2 questionnaire. This is very close to the original construct, aiming to make the construct more precise in terms of terminology and improve the composition of the instrument items based on invariance verification measurements using the CFA and ESEM (Soto & John, 2017, in John & Robins, 2021). The Big Five traits and their facets are part of the simplified version of the BFI-2 which was used in this research (part of the IPIP instrument). *Extraversion*: sociability, assertiveness, energy level. *Agreeableness*: compassion, politeness, trust. *Conscientiousness*: self-management, productivity, responsibility. *Negative emotionality*: anxiety, depression, emotional instability. *Openness to experience*: intellectual curiosity, aesthetic sensitivity, creative imagination (John, 2021). As previously indicated, the theoretical models addressing risky use of the Internet and SNS addiction accentuate the importance of dispositional factors over situational ones (Andreassen, 2015; Atroszko et al., 2018; Brand et al., 2014; Caplan, 2010; Davis, 2001; Pelling & White, 2009). Indeed, studies looking at SNS addiction have emphasized the role of personality traits as predictors in the risky use of SNS (Andreassen et al., 2013). In terms of the Big Five (Wiggins, 1996), there is a consistent positive correlation between general SNS addiction, addiction to Facebook and neuroticism (De Cock et al., 2014; Huang, 2022; Marino et al., 2018a) as well as a negative correlation with conscientiousness (Błachnio et al., 2017; De Cock et al., 2014; Huang, 2022; Marino et al., 2018a). Moreover, a meta-analysis has shown a weak but systematic negative correlation between extraversion, agreeableness, openness to experience and addiction to Facebook (Marino et al., 2018a). Although most of the current knowledge of personality traits has been acquired by means of self-assessment instruments, the subjective perception of self is represented by the specific construct of “self-esteem”. In the field of addiction, decreased self-esteem has long been a recurrent finding and current studies use it as a construct validity criterion for the adaptation of the BSMAS (Bányai et al., 2017; Luo et al., 2021; Stănculescu, 2022). As such, Rosenberg’s self-esteem scale (1965) was used in this research (Andreassen et al., 2017; Wilson et al., 2010).

### **Aims of the study**

Despite being a pressing issue, the role of personality traits in the way adolescents use social networks has not yet been researched empirically in Slovakia. The general context of Internet addiction has been explored by Holdoš (2017) and further studies have indicated the alarming increase of social network use among the adolescent population in particular (Izrael et al., 2019; Janková, 2020). The aim of the current study is to increase knowledge about the relationship between the propensity to overuse social media, personality traits and self-esteem in a sample of Slovak adolescents. Furthermore, it also confirms the gender differences in the tendency of Slovak male and female adolescents to use social media in a risky way. Based on previous studies carried out abroad (Andreassen et al., 2017; Balcerowska et al., 2022; Błachnio et al., 2017; Błachnio & Przepiorka, 2016; Dailey et al., 2020; De Cock et al., 2014; Kanat-Maymon et al., 2018; Lee, 2019; Simion & Dorard, 2020; Stănculescu, 2022; Tesi, 2018; Tobin & Graham, 2020; Turel et al., 2018), the following research hypotheses have been formulated:

H1: There is a positive correlation between the tendency to use social networks in a risky way and neuroticism in adolescents.

H2: There is a negative correlation between the tendency to use social networks in a risky way and conscientiousness in adolescents.

H3: There is a negative correlation between the tendency to use social networks in a risky way and adolescents’ self-esteem.

H4: There is a gender difference in the tendency to use social networks in a risky way.

## Methods

### Research sample

The research sample comprised 284 Slovak adolescents aged between 15 and 20 years old ( $M = 17.88$ ,  $SD = 1.67$ ). The target population included middle and late adolescents who are active on social networks and have had at least one account for a long time. In terms of gender, the sample consisted of 141 females and 143 males. The data was collected using an online questionnaire filled out on Facebook. This social network was selected based on the fact that it is one of the two most popular SNS among Slovak adolescents (Janková, 2020). However, Facebook is more “conversational” in comparison to Instagram. The respondents were asked to share the link after completing the questionnaire, i.e., the data were collected using the snowball method. Although this method is not ideal, it was optimal for the given situation (access to the target population during the pandemic). The main disadvantage of community bias was decreased by the deliberate selection of the first wave of respondents ( $N = 46$ ) to ensure they belonged to different social network communities. The main parameter for addressing other respondents was peer affiliation. Before completing the questionnaire, the respondents were informed about its purpose, time commitment (10–15 min), anonymity, voluntariness and the possibility of opting out any time. The return rate for online surveys cannot not be determined (Fan & Yan, 2010).

### Measures

*The Bergen Social Media Addiction Scale (BSMAS)* has been derived from the original Bergen Facebook Addiction Scale (BFAS). The term “Facebook” was replaced by the term “social media” to determine whether general social media addiction was present (Andreassen et al., 2016). Although these two scales have been used interchangeably (Andreassen et al., 2017), this study uses the “social networks” variant. The phenomena are similar, but not identical (Kuss & Griffiths, 2017). The scale used measured six factors: salience/importance, mood modification, tolerance, withdrawal, conflict and relapse. Each of them is represented by one item measured on a 5-point Likert scale (1=almost never to 5=very often). The points are added up with the total score ranging from 6 to 30. A higher score indicates an individual’s riskier use of social networks. The psychometric attributes of the BSMAS have recently been researched on Italian, Hungarian, Persian, Chinese and Polish samples where the scale has shown good construct validity and reliability (Balcerowska et al., 2022). According to the authors of the Slovak version (Izrael et al., 2019), the internal consistency of this instrument is  $\alpha = .94$ . In this study, the instrument reached at least satisfactory reliability (see Table 1).

*The Rosenberg Self-Esteem Scale (RSES)* has been adapted to Slovak by Halama and Bieščad (2006) and consists of 10 statements focused on general self-esteem. They are measured on a 4-point Likert scale (1=absolutely disagree to 4=absolutely agree). After repolarisation of the reversed items, the total score can range from between 10 and 40 points. The higher the score, the higher the respondent’s self-esteem. The reliability of this scale for this research was deemed acceptable (Table 1).

*The Mini International Personality Item Pool (Mini IPIP)* is a self-assessment questionnaire which measures the Big Five traits (extraversion, agreeableness, conscientiousness, openness to experience, neuroticism). The Mini IPIP is a reduced version of Goldberg’s original 50-item instrument from 1999. The Mini IPIP was created by Donnellan et al. (2006) and translated into Slovak by Hullová and Ďuriš (2017). This questionnaire consists of 20 items where each trait is represented by four questions. It is measured using a 5-point Likert scale (1=does not apply to me

at all to 5=totally applies to me). The reliability for this research sample was determined to be satisfactory (see Table 1).

**Table 1**

*Reliability of the research instruments used (N=284)*

	<b>Cronbach <math>\alpha</math></b>	<b>McDonald <math>\omega</math></b>
BSMAS	.77	.78
RSES	.83	.84
Mini IPIP – neuroticism	.69	.69
Mini IPIP – extraversion	.76	.77
Mini IPIP – openness to experience	.63	.63
Mini IPIP – agreeableness	.75	.74
Mini IPIP – conscientiousness	.58	.59

*Notes.* BSMAS = Bergen Social Media Addiction Scale; RSES = Rosenberg Self-Esteem Scale; Mini IPIP = Mini International Item Pool

**Statistical procedures**

The dataset was processed in a MS Excel 2016 spreadsheet. The statistical processing was carried out using the JASP 16.2 open-source program developed by the University of Amsterdam. The internal consistency of all the scales was verified, the characteristics of the variables were identified and the distribution was tested for suitability for further procedures. Hypotheses H1 to H3 were evaluated by means of a correlation analysis complemented by multiple linear regression. The H4 hypothesis was evaluated by means of a Student’s t-test combined with rain-cloud visualisation.

**Results**

Hypotheses H1 to H3 focused on verifying the existence of a systematic correlation between the BSMAS and personality traits. The descriptive characteristics of all the variables observed in the disaggregated dataset can be found in Table 2.

**Table 2**

*Descriptive characteristics of the variables observed in the disaggregated dataset (N = 284)*

	<b>BSMAS</b>	<b>RSES</b>	<b>NEU</b>	<b>EXT</b>	<b>OPN</b>	<b>AGR</b>	<b>CON</b>
MDN	17	27	12	12	15	16	12
M	17.15	26.95	12.19	12.64	14.99	15.72	12.42
SD	5.36	5.93	3.53	3.95	3.02	3.21	2.86
Skewness	0.05	-0.27	0.14	0.02	-0.40	-0.48	-0.09
Kurtosis	-0.46	-0.49	-0.42	-0.74	0.06	-0.34	-0.09
p (S-W)	.015	.004	.002	<.001	<.001	<.001	.007
MIN	6	11	4	4	4	5	4
MAX	30	40	20	20	20	20	19

*Notes.* BSMAS = Bergen Social Media Addiction Scale; RSES = Rosenberg Self-Esteem Scale; NEU = neuroticism; EXT = extraversion; OPN = openness to experience; AGR = agreeableness; CON =



conscientiousness; MDN = median; M = mean; SD = standard deviation; p (S-W) = Shapiro-Wilk Test p-value MIN = minimum; MAX = maximum

Since the data distribution was identified as non-normal, the first three hypotheses were evaluated using Spearman’s Rank Order Correlation (non-parametric) (Table 3).

**Table 3**

*Correlations between the Big Five personality traits, adolescents’ self-esteem, and their tendency to overuse social networks (N = 284)*

		NEU	EXT	OPN	AGR	CON	RSES
BSMAS	rho	0.292	-0.026	-0.108	0.043	-0.241	-0.191
	p	<.001	.658	.069	.475	<.001	.001

Notes: BSMAS = Bergen Social Media Addiction Scale; NEU = neuroticism; EXT = extraversion; OPN = openness to experience; AGR = agreeableness; CON = conscientiousness; RSES = Rosenberg Self-Esteem Scale; rho = Spearman’s correlation coefficient; p = level of significance

The correlation analysis revealed three statistically significant relationships ( $p \leq .001$ ). The first was a weak but positive correlation between the tendency to overuse social networks and neuroticism in adolescents ( $p = .292$ , see H1). The second was a weak but negative correlation between overusing social networks and adolescent conscientiousness ( $p = -.241$ , see H2). In the third hypothesis, a weak negative correlation between the tendency to overuse social networks and self-esteem in adolescents was found ( $p = -.191$ , see H3). The correlation results were complemented by a linear regression using the Big Five factors and self-esteem as predictors of excessive social network use. Although the most successful regression model (backward) only predicted about 9% variability of the tendency to overuse SNSs, neuroticism and conscientiousness as personality traits were supported as systematic predictors (Table 4).

**Table 4**

*Estimated regression coefficients for the tendency to overuse social networks as an explanatory variable (N=284)*

Model	R	R <sup>2</sup>	R <sup>2</sup> <sub>adj</sub>	F	p
<b>5</b>	0.316	0.100	0.093	15.591	<.001
<b>Model 5 coefficients</b>					
	<b>β</b>	<b>t</b>	<b>p</b>	<b>95% CI</b>	
(constant)	15.810	8.098	<.001	11.97	19.65
CON	-0.265	-2.428	0.016	-0.48	-.05
NEU	0.380	4.287	<.001	0.21	.55

Notes: R = multiple regression coefficient; R<sup>2</sup> = determination index; R<sup>2</sup><sub>adj</sub> = adjusted determination index; F = overall F-test result; p = F-test significance; β = standardised coefficient; t = T-test result; p = T-test significance; CI = confidence interval; CON = conscientiousness; NEU = neuroticism

Hypothesis H4 addressed the possible gender differences in the BSMAS variable. Since the distribution of the variable values across the gender subgroups did not fundamentally violate the normality assumption (Table 5), testing the statistical null hypothesis for the absence of a gender difference in the Bergen Scale scores was carried out using a parametric t-test for independent

samples (Table 6). The gender comparison test revealed a statistically significant difference in the tendency to overuse social networks. According to the descriptive indicators, this tendency was stronger in women with a moderate effect size (Table 5, Figure 1).

**Table 5**

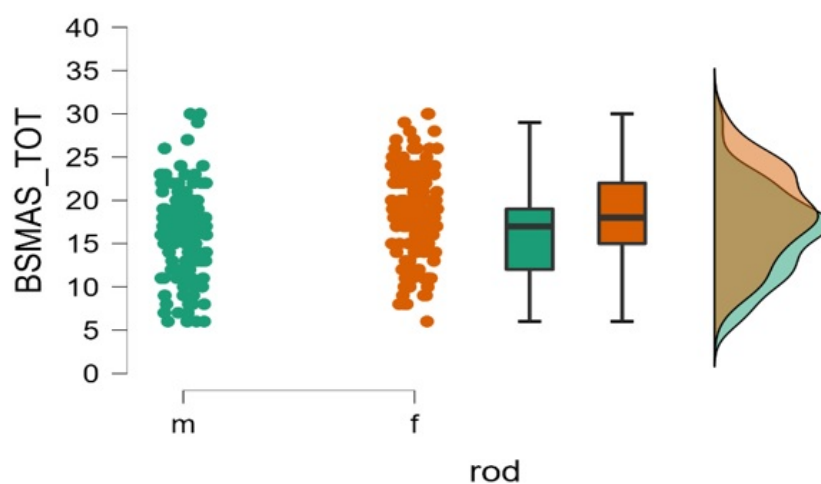
*Descriptive characteristics of the BSMAS variable by gender ( $n_m = 143, n_f = 141$ )*

		MDN	AM	SD	p (S-W)	MIN	MAX
BSMAS	m	17	15.97	5.14	.061	6	30
	f	18	18.35	5.33	.117	6	30

*Notes.* BSMAS = Bergen Social Media Addiction Scale; m = men; f = women; MDN = median; AND = arithmetic mean; SD = selective standard deviation; p (S-W) = Shapiro-Wilk Test p-value; MIN = minimum; MAX = maximum

**Figure 1**

*Visualization of the distribution of the BSMAS variable by gender subgroups ( $n_m = 143, n_f = 141$ )*



**Table 6**

*Testing gender differences in the tendency to overuse social networks*

	Gender	n	t	sig.	Cohen d
BSMAS	M	143	-3.835	< .001	-.455
	F	141			

*Notes.* BSMAS = Bergen Social Media Addiction Scale; n = number; t = Student's t-test value; sig. = Student's t-test p-value Cohen d = effect size

**Discussion**

The goal of this study was to verify the correlations between the tendency to engage in risky social networking, personality traits (Big Five model) and self-esteem in adolescent social network users in Slovakia. A further objective was to identify the possible gender differences in these behaviours.

The respondents who scored higher in neuroticism admitted overusing social media more often (Malo-Cerrato et al., 2018). This tendency has been identified in various studies around the world with the correlations ranging from weak to medium strong (Balcerowska et al., 2022; Błachnio & Przepiorka, 2016; Błachnio et al., 2017; De Cock et al., 2014; Kanat-Maymon et al., 2018; Lee, 2019; Marino et al., 2018a; Tesi, 2018; Tobin & Graham, 2020; Turel et al., 2018). The current findings regarding hypotheses H1 and H2 fully support the empirical experience of studies using similar research instruments (i.e. the Bergen Inventory and different variants of the Big Five questionnaires). Indeed, individuals who are nervous, stressed, anxious and emotionally less stable tend to use social networks in a riskier way and show greater signs of addiction. A negative correlation between conscientiousness and social network use was also identified in line with the cited research. The higher the respondents' score in conscientiousness, the lower they score in the tendency to overuse SNSs. This correlation can be explained by the fact that conscientious individuals have better impulse control, self-regulation and responsibility. This is likely what helps them approach social networks in a more sensible way and assess their benefits and risks more critically. Thus, conscientiousness can be considered a "protective factor" in terms of risky virtual social media use in adolescence.

This research also identified a negative correlation between social media overuse and adolescents' self-esteem, i.e., the less an adolescent feels the urge to communicate excessively, the higher their self-esteem. This is consistent with the results of previous research (Andreassen et al., 2016; Andreassen et al., 2017; Bányai et al., 2017; Luo et al., 2021; Stănculescu, 2022; Wilson et al., 2010). Andreassen et al. (2017) have suggested that compulsive communication online could be interpreted as a compensation mechanism if the user believes that the number of likes and followers on SNS equals success in real life. However, it should be noted that future explanations of changes in self-esteem as causes and consequences of SNS use are likely more complex.

In the broader multivariate context, there were only two traits identified as potential predictors of risky social network use: neuroticism and conscientiousness. While they were found to be weak, they were systematic and will probably play a role in further research. Self-esteem as a predictor of social media overuse was not confirmed in the present research.

In terms of the hypothesis H4, there was a gender difference identified with adolescent girls being more inclined to overuse social media in comparison to boys. In the Bergen Scale, adolescent girls scored higher than boys which is in line with the comparison analyses of other authors (Andreassen et al., 2012, 2016, 2017; Bányai et al., 2017; Griffiths et al., 2014; Malo-Cerrato et al., 2018; Stănculescu, 2022). From the viewpoint of the Bergen Scale, adolescent females can be considered somewhat more vulnerable in terms of SNS overuse. This could also relate to their higher statistical significance score on the neuroticism trait ( $p < .001$ ) and elevated agreeableness score, also found in other studies. Referring to Bakan's 1966 essay, Feingold (1994) has suggested an interesting idea in that the differences between men and women occur on the scale between agency and communality. Agency is more pronounced in men, while women tend to focus on the community. His meta-analytic studies have repeatedly confirmed these tendencies. This may imply that women find the "communality" aspect offered by social networks more appealing and are therefore at a greater risk of developing the habit to overuse them.

However, the results cannot be generalised to the whole population of middle and late adolescents in Slovakia due to two main limitations: (1) the limited representativeness of the research sample (the questionnaire was distributed on a single selected social network which could have led to a community bias, i.e. the questionnaire probably reached the respondents who spend more time on this network); (2) the data were collected exclusively through self-assessment scales which are subjective by definition (Coyne et al., 2020; Ellis, 2019; Ellis et al., 2019).



Nevertheless, the results can be viewed as a step towards a better understanding of both the target population and the possibilities offered by the research instruments. Further research could explore the psychometric attributes of the Slovak version of the Bergen Scale. Since the Big Five model of personality traits applied to the dataset only explained 9% of the variability of the tendency to overuse social networks, the roles of other variables (personality, social, etc.) still need to be explored. Balcerowska et al. (2022) has recommended differentiating between so-called multi-network users and exclusive users of a specific social network. The moderating effects of situational variables (e.g., the patterns in using social networks) could potentially help to explain this phenomenon and the respondents' motives for using SNSs should be explored further as well.

## Conclusion

The present study has addressed the dispositional aspects of the tendency to overuse social networks amongst Slovak adolescents. Despite certain limitations, the study has indicated that neuroticism and conscientiousness as personality traits may play a role in the tendency to overuse social networks. The presented findings are in line with similar explanatory findings carried out abroad. The results have indicated a gender difference in the tendency to use social networks in a risky way which can be relevant for preventive activities and intervention programmes addressing the risky use of social networks in adolescence.

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The research was conducted in compliance with the ethical standards set by the Declaration of Helsinki (1964) and informed consent was provided to all participants.

Anonymized data have been made publicly available at the osf.io and can be accessed at:  
<https://osf.io/yr75d/>

The authors did not preregister their analysis plan.

The authors have no conflict of interest to declare.

## CRedit statement

**Author1:** conceptualisation, methodology, research, data processing, sources, writing – original draft

**Author2:** conceptualisation, methodology, data processing, writing – review and editing

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