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Mental health and binge-watching behavior among university students in Egypt

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Abstract

Background Binge-watching has become increasingly popular in recent years. Although it can provide a form of entertainment and mood regulation, it has also been associated with adverse mental health issues. In this study, we explored the association between binge-watching behavior and mental health.

Methods Using a cross-sectional survey conducted from May to November 2018, we surveyed 535 participants over 18 years old from Ain Shams University by using a combination of online and pen-and-paper methods. Data on sociodemographic characteristics and TV series watching patterns were collected, and participants completed the Binge-Watching Engagement and Symptoms Questionnaire (BWESQ), the Brief Symptom Inventory (BSI-18), and the Subjective Happiness Scale (SHS).

Results Among the 535 participants surveyed, 333 were retained and divided into three groups (i.e., non-binge-watchers, trouble-free binge-watchers, and problematic binge-watchers) in accordance with previous binge-watching research. Significant between-group differences were found in terms of relationship status, commonly used devices (mobile, laptop, TV), and perceived dependency on TV series watching. Problematic binge-watchers showed significantly higher scores for all BWESQ and BSI-18 subscales.

Conclusion Trouble-free binge-watchers and problematic binge-watchers were more likely to be single than non-binge-watchers and demonstrated a marked preference for using mobile phones and laptops over traditional television. A significant positive relationship was found between problematic binge-watching and symptoms of depression, anxiety, and somatization.

Keywords Binge-watching, Depression, Anxiety, Mental health

Background

The practice of binge-watching, which is generally defined as watching multiple episodes of TV series in one sitting, has become increasingly popular in recent years with the expansion of video streaming platforms (e.g., Netflix, Amazon Prime, Hulu), the main feature of which is to provide users with unlimited access to entire seasons of TV series [1].

As a common leisure activity adopted by many [2, 3], binge-watching has been the subject of increasing scientific research over the past 5 years, with studies demonstrating positive relationships between such a viewing pattern and individuals' well-being [4, 5], social bonds [2, 6], and overall enjoyment/engagement during viewing sessions [7, 8]. However,

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binge-watching has also proven to be associated with potential negative outcomes (e.g., disruption of sleep patterns, decrease in work performance, physical health problems due to a sedentary lifestyle [9], and negative mental health correlates such as depression, anxiety, and loneliness [10–13]). Therefore, when done at an excessive/problematic level, binge-watching has notably been proposed to be a maladaptive coping strategy that individuals may use to regulate and escape from negative emotions that, in turn, could exacerbate these feelings [2, 14, 15].

In particular, such a postulate was specifically examined in the unprecedented context of the coronavirus disease 2019 (COVID-19) pandemic, which had a dramatic impact on individuals' well-being [16, 17], with higher rates of reported psychopathological symptoms, including depression, anxiety, and emotional distress [18, 19]. Indeed, with the enforced lockdown compelling people to stay at home, TV series watching was noted to have significantly increased during the pandemic [20–23], and some studies found binge-watching to be associated with greater psychological distress in this context, especially for individuals who reported lower levels of social support and for whom binge-watching was considered a maladaptive coping strategy aimed at dealing with pandemic stressors [23].

Overall, research findings on the relationship between binge-watching and mental health provide mixed evidence of positive and negative effects, likely reflecting the fact that most of the studies conducted conflated non-problematic and problematic forms of engagement in this activity. Nonetheless, binge-watching is increasingly acknowledged to be a two-faceted phenomenon (i.e., it can be both beneficial and detrimental to viewers), as reflected by these two distinct viewing patterns, which should be systematically accounted for in any research efforts aimed at disentangling the complex relationship between binge-watching and mental health [1, 15, 24, 25].

The current study meets this objective by examining whether non-problematic and problematic binge-watchers diverge with respect to relevant mental health indicators (i.e., subjective happiness and psychopathological symptoms). To this end, and in line with prior binge-watching research studies mindful of this important distinction [26, 27], we adopted a group-based approach to assess these variables in the following three categories of TV series viewers: (a) *non-binge-watchers* (NBWs), (b) *trouble-free binge-watchers* (TBWs), and (c) *problematic binge-watchers* (PBWs).

Method

Procedure

In the current study, we capitalized on the data collected in a multinational study on binge-watching conducted by Flayelle and colleagues between May and November 2018, which aimed to cross-culturally validate two questionnaires assessing binge-watching behaviors and related motives (Watching TV Series Motives Questionnaire [WTSMQ] and Binge-Watching Engagement and Symptoms Questionnaire [BWESQ]) [28]. Data were collected in nine different languages and distributed to a large panel of college and university students from 17 countries by using a combination of online and pen-and-paper methods. For this study, we used only the data collected from Arabic participants in Egypt. The sample was a convenient sample. Students were emailed directly by the university, and the researchers had no access to their contact details.

Informed consent was obtained as part of the online survey, which was entirely anonymous with confidentiality of information ensured. This study was approved by the Research Ethics Committee of the Faculty of Medicine of Ain Shams University (project identification code: FMASU R 45/2018).

Participants

A total of 535 students were recruited from Ain Shams University. Inclusion criteria for participating in this study were (1) being over 18 years old, (2) being fluent in Arabic language, and (3) having watched TV series episodes at regular intervals or more intensively (i.e., several episodes in one session) via USB, DVD, subscription video on demand, or other streaming devices over the last 6 months.

Measures

Sociodemographic variables

Age, gender, educational level, and marital status were collected.

TV series watching patterns

Participants were asked about their TV series viewing habits, including watching frequency, time spent per viewing session during weekdays and days off, number of episodes watched in one session, and number of devices used. They were also requested to provide a “yes” or “no” answer to the following questions: (1) “Does TV series watching already have a negative impact on your everyday life (e.g., sleep deprivation, postponement of daily tasks, displacement of other activities, close relatives' reproaches, etc.)?”, (2) “Do

you consider your TV series consumption as problematic?"; and (3) "Do you feel dependent on TV series?"

Binge-Watching Engagement and Symptoms Questionnaire (BWESQ)

The Arabic version of the BWESQ [28] was used as a 40-item scale to assess binge-watching engagement and features of problematic binge-watching. The questionnaire consists of seven subscales: *engagement* (e.g., "Watching TV series is one of my favorite hobbies"), *positive emotions* (e.g., "Watching TV series is a cause for joy and enthusiasm in my life"), *pleasure preservation* (e.g., "I worry about getting spoiled"), *desire/savoring* (e.g., "I look forward to the moment I will be able to see a new episode of my favorite TV series"), *binge-watching* (e.g., "When an episode comes to an end, and because I want to know what happens next, I often feel an irresistible tension that makes me push through the next episode"), *dependency* (e.g., "I get tense, irritated or agitated when I can't watch my favorite TV series"), and *loss of control* (e.g., "I sometimes try not to spend as much time watching TV series, but I fail every time"). Items are scored on a 4-point Likert scale, ranging from 1 (strongly disagree) to 4 (strongly agree). A total score was computed for each subscale. Cronbach's alpha coefficients in the current sample ranged from 0.958 to 0.969.

Brief Symptom Inventory (BSI-18)

An Arabic translation of the BSI-18 [29] was used to assess general psychological distress, with 18 descriptions of physical and emotional complaints distributed over three facets: *depression* (e.g., "feeling no interest in things"), *anxiety* (e.g., "feeling tense"), and *somatization* (e.g., "trouble getting breath"). At the time of the study, no Arabic version of the BSI-18 was available, and the research team adapted it by following a classic translation-back-translation procedure [28]. Respondents have to specify on a 4-point Likert scale ranging from 0 (not at all) to 4 (very much) the extent to which they are troubled by such experiences. An average score is calculated

for each subscale. Cronbach's alpha coefficients in the current sample ranged from 0.928 to 0.948.

Subjective Happiness Scale

The Arabic version of the Subjective Happiness Scale (SHS) [30] is a four-item measure of global self-report happiness with respondents rating on a 7-point Likert scale the extent to which they feel happy or unhappy (e.g., "In general, I consider myself a very happy person"). A total score was computed. Cronbach's alpha coefficient in the current sample was 0.802.

Data reduction and statistical analysis

The collected data were revised, coded, and tabulated in a PC by using SPSS 25. We used data on TV series viewing habits (i.e., time spent per viewing session, number of episodes watched in one session, reported functional impact, and self-identification as a problematic binge-watcher) to constitute the three groups of interest (i.e., NBWs, TBWs, and PBWs), in accordance with the criteria adopted in previous binge-watching research [14, 27], which are reported in Table 1. Participants who did not meet inclusion criteria were excluded from the database, thus resulting in a final sample of 333 participants (female = 62.2%; $M_{age} = 21.8$; $SD_{age} = 2.53$), consisting of NBWs ($n = 73$), TBWs ($n = 83$), and PBWs ($n = 177$).

The chi-square test was used to assess associations between categorical variables. We used a one-way analysis of variance to investigate differences in means of more than two groups and the Kruskal-Wallis test as a non-parametric alternative. Post hoc tests identified specific group differences after significant overall findings. Pearson's correlation coefficient was used to measure the strength and direction of linear relationships between continuous variables.

Results

Sociodemographic and TV series watching variables

Gender and educational level were not significantly associated with binge-watching behavior; however, being single was associated with TBWs and PBWs (p

Table 1 Selection criteria for the three groups of participants

	Non-binge-watchers	Trouble-free binge-watchers	Problematic binge-watchers
Time spent watching per viewing session	< 120 min	≥ 120 min	≥ 120 min
Number of episodes watched in a row	< 3	≥ 3	≥ 3
Reported functional impact	No	No	Yes
Self-identification as a problematic TV series viewer	No	No	Yes or no

See Flayelle et al. [27] for the detailed rationale behind the current selection criteria

= 0.014). A significant association was noted with the type of devices used. TV usage was significantly lower among TBWs and PBWs than among NBWs ($p < 0.001$), whereas laptop usage was significantly higher among

TBWs than among NBWs and PBWs ($p < 0.001$), and mobile usage was significantly higher among PBWs than among NBWs and TBWs ($p = 0.029$). Self-reported dependency was significantly higher among PBWs than among NBWs and TBWs ($p < 0.001$) (Table 2).

Table 2 Description and comparison of the three groups of participants regarding sociodemographic data and TV series watching patterns

		Overall	Non-binge-watchers N = 73	Trouble-free binge-watchers N = 83	Problematic binge-watchers N = 177	Test of significance
		N (%)	N (%)	N (%)	N (%)	p-value
Gender	Male	126 (37.84%)	30 (41.1%)	37 (44.58%)	59 (33.33%)	0.177
	Female	207 (62.16%)	43 (58.9%)	46 (55.42%)	118 (66.67%)	
Educational level	Secondary school	178 (53.45%)	34 (46.58%)	39 (46.99%)	105 (59.32%)	0.073
	Bachelor's degree	155 (46.55%)	39 (53.42%)	44 (53.01%)	72 (40.68%)	
Relationship status	Married	5 (1.5%)	4 (5.48%)	0 (0%)	1 (0.56%)	0.014
	Single	328 (98.5%)	69 (94.52%)	83 (100%)	176 (99.44%)	
TV	No	286 (85.89%)	49 (67.12%)	75 (90.36%)	162 (91.53%)	< 0.001
	Yes	47 (14.11%)	24 (32.88%)	8 (9.64%)	15 (8.47%)	
Laptop	No	179 (53.92%)	53 (72.6%)	31 (37.35%)	95 (53.98%)	< 0.001
	Yes	153 (46.08%)	20 (27.4%)	52 (62.65%)	81 (46.02%)	
Mobile	No	191 (57.36%)	45 (61.64%)	56 (67.47%)	90 (50.85%)	0.029
	Yes	142 (42.64%)	28 (38.36%)	27 (32.53%)	87 (49.15%)	
Self-reported dependency	Yes	71 (21.32%)	2 (2.74%)	9 (10.84%)	60 (33.9%)	< 0.001
	No	262 (78.68%)	71 (97.26%)	74 (89.16%)	117 (66.1%)	

Bolded data show significant results

Table 3 Comparison of groups regarding binge-watching engagement and symptoms, subjective happiness, and psychopathological symptoms

	Overall N=333	Non-binge-watchers N = 73	Trouble-free binge- watchers N = 83	Problematic binge- watchers N = 177	ANOVA	
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	F	p-value
Age	21.8 ± 2.53 (18–43)	22.33 ± 4.05 (18–43)	21.67 ± 2.06 (18–30)	21.63 ± 1.8 (18–28)	2.099	0.124
BWESQ-Loss of control	15.4 ± 4.82 (7–28)	10.89 ± 3.06 ^a (7–17)	13.41 ± 3.54 ^b (7–25)	18.23 ± 4.02 ^c (9–28)	104.756	< 0.001
BWESQ-Engagement	18.96 ± 5.37 (8–32)	14.42 ± 4.51 ^a (8–27)	19.2 ± 5.21 ^b (9–31)	20.68 ± 4.7 ^b (10–32)	38.824	< 0.001
BWESQ-Desire/Savoring	17.45 ± 4.24 (6–24)	13.86 ± 4.49 ^a (6–24)	17.68 ± 3.38 ^b (10–24)	18.78 ± 3.68 ^b (9–24)	38.616	< 0.001
BWESQ-Positive emotions	13.54 ± 3.04 (5–20)	11.39 ± 3.28 ^a (5–20)	13.58 ± 2.85 ^b (7–20)	14.4 ± 2.57 ^b (8–20)	26.109	< 0.001
BWESQ-Binge-watching	15.06 ± 3.97 (6–24)	11.28 ± 3.41 ^a (6–18)	14.48 ± 3.3 ^b (7–24)	16.89 ± 3.27 ^c (7–24)	67.143	< 0.001
BWESQ-Pleasure preservation	7.77 ± 2.55 (3–12)	6.28 ± 2.61 ^a (3–12)	8.25 ± 2.32 ^b (3–12)	8.13 ± 2.41 ^b (3–12)	15.240	< 0.001
BWESQ-Dependency	11.03 ± 3.4 (5–20)	8.97 ± 3.17 ^a (5–19)	10.09 ± 2.8 ^a (5–17)	12.34 ± 3.2 ^b (5–20)	31.964	< 0.001
Subjective happiness	14.68 ± 3.72 (4–25)	15.55 ± 3.85 (7–23)	14.42 ± 3.73 (4–23)	14.46 ± 3.63 (4–25)	2.166	0.117
BSI_Somatization	5.79 ± 5.24 (0–22)	4.24 ± 4.44 ^{ab} (0–18)	4.79 ± 4.82 ^a (0–20)	6.9 ± 5.49 ^b (0–22)	7.975	< 0.001
BSI_Depression	9.33 ± 6.65 (0–24)	7.11 ± 6.35 ^a (0–24)	8.19 ± 6.5 ^a (0–24)	10.77 ± 6.52 ^b (0–24)	8.660	< 0.001
BSI_Anxiety	8.57 ± 6.46 (0–24)	6.39 ± 5.82 ^a (0–24)	7.61 ± 6.2 ^a (0–24)	9.93 ± 6.55 ^b (0–24)	8.199	< 0.001

ANOVA analysis of variance, BWESQ Binge-Watching Engagement and Symptoms Questionnaire, BSI Brief Symptom Inventory; Superscript ^{abc}: indicate no significant difference between items showing the same superscript, Bolded data show significant results

Outcome variables

As indicated in Table 3, NBWs presented significantly lower mean scores than TBWs and PBWs did on all BWESQ dimensions that assessed engagement in binge-watching (i.e., *engagement, desire/savoring, positive emotions, pleasure preservation*). PBWs, in turn, showed significantly higher rates of symptoms of problematic binge-watching (i.e., *loss of control, dependency, binge-watching*) in comparison with NBWs and TBWs, which attests to the validity of the constituted groups [26, 27].

Moreover, although the three groups did not differ significantly regarding self-reported happiness, PBWs systematically reported significantly higher levels of psychopathological symptoms than did NBWs and TBWs, whether in the form of depression, anxiety, or somatization.

On the other hand, correlations between items from the BWESQ, SHS, and BSI-18 for the total sample were investigated and revealed a negative correlation between the loss of control BWESQ subscale and subjective happiness ($r = -0.208$), indicating that as loss of control diminishes, subjective happiness tends to increase. Conversely, the positive correlation between loss of control and the total score at the BSI-18 ($r = 0.278$) implies that

reduced control is associated with heightened symptoms of psychological distress. Similar patterns of associations emerged between other BWESQ subscales and both subjective happiness and psychological distress symptoms, with these relationships being more pronounced for the remaining dimensions that assessed symptoms of problematic binge-watching (i.e., *dependency and binge-watching*). These results are presented in Table 4.

At the group level, a significant negative correlation was found between subjective happiness and the depression subscale of the BSI-18 in NBWs, TBWs, and PBWs, with the strongest correlation seen among the PBWs. In addition, a significant negative correlation was found between subjective happiness and the somatization subscale of the BSI-18 in both TBWs and PBWs. Finally, a significant negative correlation was found between subjective happiness and the anxiety subscale of the BSI-18 in the three groups. These results are reported in Table 5.

Discussion

Binge-watching behavior is a relatively new phenomenon that has emerged with the proliferation of streaming services and digital devices [31]. Research on this topic is still emerging and may not have been extensively studied in all countries, including Egypt. In this study, we therefore examined the association between binge-watching behavior and mental health in 333 Egyptian respondents divided into three groups of TV series viewers: NBWs (21.9%), TBWs (24.9%), and PBWs (53.1%).

We observed that the use of mobile devices or laptops was linked to both trouble-free and problematic binge-watching. The use of portable devices may facilitate viewing at various locations and times, thereby enhancing accessibility. A study conducted in the Emirates by Abdul Azim in 2023 echoed these findings, revealing that laptops were used by 35.8% of the high binge-watcher group, whereas smartphones were used by 75% of the moderate binge-watcher group [32].

In 2015, the Statista Research department published an article stating that desktops and laptops were the

Table 4 Correlations between binge-watching engagement and symptoms, subjective happiness, and psychopathological symptoms among all participants

Total participants = 333	SHS		BSI-18	
	<i>r</i>	<i>p</i> -value	<i>r</i>	<i>p</i> -value
Loss of control	-0.208	< 0.001	0.278	< 0.001
Engagement	-0.127	0.029	0.185	0.001
Desire/Savoring	-0.062	0.288	0.142	0.015
Positive emotions	-0.122	0.036	0.266	< 0.001
Binge-watching	-0.163	0.005	0.225	< 0.001
Pleasure preservation	-0.117	0.044	0.143	0.014
Dependency	-0.174	0.003	0.292	< 0.001

SHS Subjective Happiness Scale, BSI-18 Brief Symptom Inventory, Bolded data show significant results

Table 5 Correlations between subjective happiness and psychopathological symptoms in the three groups of participants

		BSI-18			
			Somatization	Depression	Anxiety
SHS	Non-binge-watchers	<i>r</i>	-0.236	-0.509	-0.387
		<i>p</i> -value	0.065	< 0.001	0.002
	Trouble-free binge-watchers	<i>r</i>	-0.377	-0.476	-0.294
		<i>p</i> -value	0.001	< 0.001	0.009
	Problematic binge-watchers	<i>r</i>	-0.433	-0.605	-0.488
		<i>p</i> -value	0.001	< 0.001	< 0.001

SHS Subjective Happiness Scale, BSI-18 Brief Symptom Inventory, Bolded data show significant results

leading devices (60% of respondents) used to binge-view TV shows in the USA among Millennials [33]. Interestingly, another report also published by Statista and based on data from the second quarter of 2022 found that the smart TV is the most used device for viewing streaming content worldwide, accounting for 35.3% of the total viewing time [34].

In terms of relationship status, our findings were also consistent with those from a study conducted by Ahmed (2017), which investigated the psychological effects of binge-watching in the UAE. Single individuals tend to engage in more severe levels of binge-watching behavior than married individuals do, which could be understood as a way of coping with loneliness [10]. Moreover, the most commonly used devices for watching were laptops, followed by mobile devices, which also demonstrates the influence of ubiquitous and portable technologies in encouraging binge-watching behavior.

In addition, in our study, we examined the association between binge-watching and mental health issues, including depression, anxiety, and somatization. Depression was found to be higher in problematic binge-watchers, which resonates with findings from previous studies [12, 13, 35, 36] but stands in contrast with those of Tefertiller and Maxwell [37]. It is possible that this variation could be attributed to the differences in measurement scales and sample sizes used. However, similar to what Tefertiller and Maxwell [37] reported, we noted a significant positive relationship between anxiety and problematic binge-watching.

Furthermore, we identified a significant but weak positive correlation between positive emotions (i.e., emotional benefits derived from TV series watching) as assessed by the BWESQ and high levels of psychological distress. This is somehow counterintuitive, as we would expect positive emotions to be associated with lower levels of psychological distress. A possible explanation could be that people who experience high levels of emotions, whether positive or negative, are more prone to psychological distress due to the complexity of emotional regulation [38]. In the PBWs group, a weak positive correlation was found between dependency and experiencing psychological distress, which aligns with previous findings [10, 36, 39].

Our study also revealed significant negative correlations between somatization and subjective happiness in both TBWs and PBWs. In addition, all three groups showed significant negative correlations between anxiety and subjective happiness. Significant weak negative correlations were observed between subjective happiness and depression across the three groups, with the strongest correlation evident among PBWs. These findings align with those of Kil et al. [40], who concluded that

problematic smartphone use and binge-watching were linked to reduced subjective well-being and increased depression levels. However, the results contrast those of Erker [41], who reported finding no significant relationship between binge-watching and well-being. This disparity may be attributed to variations in measurement scales and the timing of the study, with Erker's research conducted post-COVID.

Overall, the current findings can inform interventions aimed at reducing distress in individuals who struggle with binge-watching behaviors. Indeed, using TV series watching as a form of self-treatment or as a means of escaping negative emotions, such as anxiety and depression, may be considered a maladaptive emotion regulation strategy [14]. Over time, it can evolve into a habit that leads to loss of control over the amount of time spent watching, ultimately resulting in negative outcomes and functional impact in various areas of the person's life [31, 42–47]. Therefore, to counteract this detrimental effect, it seems sensible to elevate problematic binge-watchers' awareness of their thoughts, emotions, and actions and to help them improve mood regulation strategies. This can, for example, be achieved through mindfulness techniques, as explored in a systematic review on mindfulness-based interventions in substance use disorders [48].

A key limitation of this study was the possibility of recall bias in respondents. Further research involving diverse age groups is warranted to ascertain whether the identified patterns of results persist across different demographics. Finally, it should be noted that this study relied on data collected before the onset of the COVID-19 pandemic, implying the possibility of changes in its applicability.

Conclusions

This study showed that TBWs and PBWs were more likely to be single than NBWs and that they demonstrated a marked preference for using mobile phones and laptops over traditional television. A significant positive relationship was found between problematic binge-watching and symptoms of depression, anxiety, and somatization. Future research should address the relation between binge-watching and other mental health issues, such as sleep disturbances, attention problems, obesity, and body image misperception (especially if individuals are exposed to unrealistic beauty and body ideals in television series). Also warranted is an exploration of risk factors for problematic binge-watching by approaching diverse population groups for a better understanding of this phenomenon and to inform potential prevention and therapeutic efforts.

Abbreviations

COVID-19 Coronavirus disease 2019

NBWs	Non-binge-watchers
TBWs	Trouble-free binge-watchers
PBWs	Problematic binge-watchers
BWESQ	Binge-Watching Engagement and Symptoms Questionnaire
FMASU	Faculty of Medicine of Ain Shams University
BSI-18	Brief Symptom Inventory
SHS	Subjective Happiness Scale

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Authors' contributions

HE, FT, MF, and JB conceptualized the article and designed the methodology. HE and FT were responsible for data curation. MY conducted the statistical analyses. MF and JB contributed to the interpretation of the results. HE, FT, and MY drafted the first version. All authors contributed to and approved the final version.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

The study was registered at the Faculty of Medicine Ain Shams Research Institute (MASRI) and approved by the Research Ethics Committee of the Faculty of Medicine, Ain Shams University (FMASU R 45/2018). A written Informed consent was included in the study explaining in details the study design and aim prior to enrollment. Students could terminate their participation at any time they desired without justification. Confidentiality of information was assured, and they were informed that this study could be used for scientific publication without the disclosure of the participants' personal identity.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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