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Reliability of the Arabic Smartphone Addiction Scale-Short Version (SAS-SV)

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Abstract: The rapid proliferation of smartphones has reshaped modern lifestyles, particularly in developing countries where mobile technology continues to expand rapidly. In the Arab world, including Jordan, smartphone ownership and internet access are nearly ubiquitous, especially among youth. While smartphones provide numerous benefits, concerns are growing over their excessive use and associated psychological impact. There remains a shortage of culturally validated tools to assess this phenomenon. This study aimed to translate and evaluate the reliability of the Arabic version of the Short Version of the Smartphone Addiction Scale (SAS-SV). The final Arabic version was distributed through an online survey targeting first-, second-, and third-year medical students at the Hashemite University. Data were collected in November 2020 via Google Forms, yielding 255 responses, with 248 valid entries used for analysis. Participants had a mean age of 18.85 years (SD = 0.78), with females comprising 61% of the sample. Internal consistency reliability was assessed using Cronbach's alpha, which was found to be 0.855, indicating strong reliability. Item-total correlation analysis revealed that all items contributed positively to the overall scale reliability. The results support the Arabic SAS-SV as a reliable and efficient instrument for assessing smartphone addiction in Arabic-speaking populations. This study addresses a critical gap in behavioral health assessment in the Arab region and encourages future research and intervention efforts using culturally adapted diagnostic tools.

Keywords: smartphone addiction; university students; Jordan; SAS-SV; mental health

Introduction

The rapid proliferation of multifunctional smartphone devices, particularly within developing nations, has had a transformative impact on our daily lives, leading to significant changes across diverse aspects of contemporary society (Hossain & Ahmed, 2016; Sarwar & Soomro, 2013). With an estimated 6.7 billion smartphone subscriptions globally, smartphone penetration reached 69% in 2023, indicating a rise from the preceding year (Statista, 2024). In 2023, about 83% of the Arab world's population aged 10 and above owned a mobile phone (ITU, 2023). The majority of Arab users spend an average of 7.13 hours online daily, with smartphones being the most used device for that purpose (Gaggi et al., 2020; Statista, 2024). Consequently, analyzing smartphone use patterns and their association with psychological symptoms is increasingly becoming the focus of studies. While life is easier in terms of survival and work, concerns about dependence on gadgets have been raised. Studies have shown that excessive smartphone use has been linked to a decline in mental well-being, including increased anxiety, depression, stress, and lower self-esteem (Boumosleh & Jaalouk, 2017; Demirci et al., 2015; Li et al., 2019). In a meta-analysis that included 41,871 individuals in 2019, Sohn and colleagues found a significant increase in the incidence of emotional problems among excessive

smartphone users in the last 10 years (Sohn et al., 2019). Recent studies in Jordan indicated increasing prevalence of smartphone addiction over the last five years. These studies reported a prevalence of smartphone addiction ranging from 36% to 56% in over 2500 surveyed individuals (Abuhamdah & Naser, 2023; Gammoh et al., 2024). Data shared by Kemp (2025) revealed that the number of mobile connections increased by 4.8% year-on-year change, equivalent to 82.3% of the total population. Additionally, the number of internet users in Jordan grew by 0.4% during the same period. These trends may contribute to the rising rates of smartphone addiction observed among the Jordanian population.

Kwon et al. (2013) developed and validated the Smartphone Addiction Scale (SAS), initially in Korean and later published an English version. To enhance its practicality, they introduced a Short Version (SAS-SV), which provides a more time-efficient and cost-effective method for assessing smartphone addiction. This cost-effective and time-saving tool tracks the frequency of six key symptoms associated with problematic smartphone use (Andrade et al., 2020). Kwon et al. established its reliability and validity, with an alpha coefficient of 0.911 (Kwon et al., 2013).

In the Arab countries, scientific literature addressing the addictive qualities and statistics of smartphone use is scarce. While growing concerns surround the impact of smartphone use in the Arab world, the lack of a well-established, self-diagnostic tool for smartphone addiction highlights the need for further research. Although prior studies by Sfendla et al., Fathalla, and El Sayed El Keshky et al. investigated the reliability of an Arabic version of the Smartphone Addiction Scale (SAS) and its Short Version (SAS-SV), continued efforts are essential to develop and implement even more robust scales for effectively evaluating, identifying, and understanding problematic smartphone use in the Arab world (El Sayed El Keshky et al., 2022; Fathalla, 2019; Sfendla et al., 2018). Recent studies by Elwakeel et al. and Sarhan have further contributed to our understanding of smartphone addiction among Arab populations, particularly in Saudi Arabia and Palestine (Elwakeel et al., 2025; Sarhan, 2024).

The importance of questionnaire translation is critical in terms of providing a better understanding and a smoother survey-taking process covering a wider slice of the population. This broader reach transcends geographical limitations and fuels evidence-based practices that can truly transform global health as the main barrier for participation in health research is often related to communication difficulties (Premji et al., 2020). So translation of surveys directly addresses this obstacle, unlocking opportunities to engage Arabic communities and bridge the current information gap. On this account, this study was intended to provide a solid and comprehensive insight into the emerging phenomenon of addiction to smartphones by investigating the reliability of a newly translated Arabic version of the SAS-SV.

Methods

The smartphone addiction scale – short version is a 10-item Likert scale with 6 options: strongly disagree (1 point), disagree (2 points), weakly disagree (3 points), weakly agree (4 points), agree (5 points), and strongly agree (6 points). This arrangement was maintained in the translated version. For the translation process, the guidelines put by Sousa & Rojjanasrirat, 2011 were generally followed and the following steps were employed: (1) Translation of the instrument from English to Arabic by a member of the team, (2) The Arabic version was discussed by members of the team and a version was agreed upon, (3) Back translation from Arabic to English by a team member not involved in the first two steps, (4) Comparison of the back-translated version with the original, and (5) The final version was agreed upon, after making necessary changes suggested in the previous step. Google Forms was used to create an online version of the final translation. The link with a consent form was sent to the first three years' students of the faculty of medicine at the Hashemite University via social media groups. Data were collected in November 2020.

The minimum sample size was calculated using an online sample size calculator (Arifin, 2020) based on the formula by Bonett (2002). The variables of the formula had the following values:

minimum acceptable alpha, 0.70; expected alpha, 0.80; significance level, 0.05; power, 0.8; number of items, 10; and dropout rate, 10%. The minimum sample size was calculated to be 122.

Responses were tabulated using Microsoft Excel. For each instrument, the internal consistency reliability (Cronbach's Alpha) and inter-item correlation were calculated. The mean, the standard deviation, the item-total correlation, and the value of Cronbach's Alpha if the item was deleted were determined for each item. Two factors were also considered, the gender and age of the respondent. IBM SPSS v25 was used to analyze the data.

Results

There were 255 respondents. Of those, 156 (61%) were females. Of the respondents, 88 (35%) were first-year students, 141 (55%) were second year, and 26 (10%) were third year. The mean age of the participants was 18.85 years (SD = 0.78) with a range of 17-22.

For the calculation of Cronbach's alpha, 248 valid responses were included. The value of Cronbach's alpha was 0.855. Table 1 shows the statistics for the 10 items of the instrument. Deletion of any of the 10 items led to a decrease in the value of alpha, except item 3. This item not only contributed the least to the overall reliability (0.398), but its deletion led to a slight increase in Cronbach's alpha (0.857). On the other hand, item 6 impacted reliability the most (0.770) and its deletion led to the greatest decrease in alpha (0.821).

Table 1. Statistics of the 10 items of the SAS-SV.

	Item	Mean	Standard deviation	Corrected item-total correlation	Cronbach's Alpha if item is deleted
1	Missing planned work due to smartphone use	5.14	0.112	0.511	0.846
2	Having a hard time concentrating in class, while doing assignments, or while working due to smartphone use	5.04	1.193	0.567	0.842
3	Feeling pain in the wrists or at the back of the neck while using a smartphone	3.94	1.663	*0.398*	*0.857*
4	Won't be able to stand not having a smartphone	4.54	1.464	0.497	0.846
5	Feeling impatient and fretful when I am not holding my smartphone	3.54	1.617	0.720	0.826
6	Having my smartphone in my mind even when I am not using it	3.33	1.588	*0.770*	*0.821*
7	I will never give up using my smartphone even when my daily life is already greatly affected by it	3.25	1.603	0.538	0.843
8	Constantly checking my smartphone so as not to miss conversations between other people on Twitter or Facebook	3.35	1.658	0.593	0.838
9	Using my smartphone longer than I had intended	4.78	1.261	0.564	0.841
10	The people around me tell me that I use my smartphone too much	3.65	1.686	0.497	0.848

The inter-item correlation matrix of the 10 items are shown in Table 2. This ranged from 0.165 (between items 3 and 4) to 0.732 (between items 5 and 6). The average inter-item correlation was 0.378.

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10
Item 1	1.000									
Item 2	0.673	1.000								
Item 3	0.280	0.344	1.000							
Item 4	0.228	0.182	*0.165*	1.000						
Item 5	0.378	0.421	0.329	0.604	1.000					
Item 6	0.408	0.485	0.347	0.455	*0.732*	1.000				
Item 7	0.178	0.217	0.185	0.491	0.521	0.504	1.000			
Item 8	0.257	0.371	0.260	0.297	0.455	0.643	0.427	1.000		
Item 9	0.530	0.493	0.311	0.282	0.393	0.427	0.304	0.408	1.000	
Item 10	0.287	0.331	0.266	0.251	0.366	0.442	0.344	0.392	0.327	1.000

Discussion

This study investigated the reliability of the Arabic version of the Smartphone Addiction Scale-Short Version (SAS-SV) in a sample of medical students. As measured by Cronbach's alpha, internal consistency reliability is considered acceptable within a range of 0.700 to 0.950 (Bland & Altman, 1997). However, values exceeding 0.900 might suggest redundancy, where some items capture the same underlying concept (Tavakol & Dennick, 2011). The original SAS-SV displayed strong reliability with a Cronbach's alpha of 0.911 (Kwon et al., 2013).

Translations into other languages have yielded similar results. A Serbian version had an alpha of 0.890 (Nikolic et al., 2022), while the Turkish version of the SAS-SV recorded an alpha of 0.867 in one study (Noyan et al., 2015). Brazilian (Andrade et al., 2020) and Italian (Pasquale et al., 2017) translations of the SAS-SV showed slightly lower alpha values of 0.810 and 0.790, respectively. Likewise, the Chinese version exhibited good internal consistency across two samples with alpha values of 0.829 and 0.881 (Zhao et al., 2022). In this study, the Arabic version of the SAS-SV, similarly, showed a high internal consistency with Cronbach's alpha being 0.855. This value aligns with previous research using an Arabic version of the scale, which reported an alpha of 0.870 (Sfendla et al., 2018). However, some variation exists: El Sayed El Keshky et al. (2022) reported a lower alpha (0.790) for a different Arabic version in Saudi Arabia, while Fathalla (2019) obtained a higher value (0.904) in Egypt. These discrepancies might be attributed to differences in the target population, sample size, and translation accuracy. Nevertheless, all reported alpha values were within an acceptable range for internal consistency. These studies indicated important findings relevant to significant gender differences in smartphone addiction with male university students scoring higher, on average, than females (Elwakeel et al., 2025; Sarhan, 2024). A previous study in Jordan linked smartphone addiction to various mental health conditions such as severe depressive symptoms and insomnia (Gammoh et al., 2024). Additionally, studies from other regions have demonstrated the global relevance of this issue. For instance, Hamamura et al. (2023) validated the SAS-SV among Japanese adults, while Azizi et al. (2024) investigated smartphone addiction in Iranian schoolchildren (Azizi et al., 2024; Hamamura et al., 2023). These studies underscore the importance of culturally adapted and validated tools for assessing smartphone addiction across diverse populations.

In this study, the inter-item correlation analysis revealed that items five ("feeling impatient and fretful") and six ("having my smartphone in mind even when not using it") exhibited the strongest correlation (0.732); however, the correlation is not that high to consider these two items redundant. Conversely, items three ("feeling pain") and four ("not being able to stand not having a smartphone") showed the weakest correlation among all items (0.165). The removal of any item led to a decrease in alpha value except for item three, deleting it led to a slight increase in alpha value. Conversely, omitting item six decreased the alpha value the most (changing it from 0.855 to 0.821), highlighting

its importance for measuring smartphone addiction. Furthermore, item six had the highest item-total correlation (0.770), further emphasizing its importance in this specific sample. This suggests that for medical students, "having your smartphone in mind even when not using it" is a crucial indicator of smartphone addiction compared to the other aspects measured by the scale. It is noteworthy that our findings regarding item six aligned with observations from studies using the original and translated versions of the SAS-SV. Kwon et al. (2013) reported a high item-total correlation for item six in the original version (0.74), while Nikolic et al. (2022) and Andrade et al. (2020) found similar results for the Serbian (0.73) and Brazilian versions (0.626), respectively. However, prior studies using the Arabic version haven't reported the same emphasis on item six. Additionally, these studies found that omitting individual items didn't impact the alpha value significantly.

The consistency of the Smartphone Addiction Scale-Short Version's (SAS-SV) high reliability across various languages, including our own findings, suggests its effectiveness for cross-cultural research. This likely stems from the instrument's original construction. The straightforward language of the SAS-SV items facilitates smoother translation and cultural adaptation, reducing challenges in applying the scale to different populations. Unlike some scales that rely on scientific and clinical terms, the SAS-SV relies on everyday experiences ("missing planned work," "having trouble concentrating," "feeling pain"). This approach minimizes ambiguity during translation, ensuring the core concept of smartphone addiction is captured consistently (item 5 asks about "feeling impatient and fretful" rather than "anxiety"). However, some minor adjustments might still be necessary. For example, social media platforms like "Twitter or Facebook" (item 8) may need to be adapted to reflect the most popular platforms in the target culture, although this did not affect our survey reliability.

The translation of this study was made rigorous as much as possible. The results obtained in this research were similar to those obtained in previous Arabic translation attempts (El Sayed El Keshky et al., 2022; Fathalla, 2019; Sfendla et al., 2018). Compared to our results, the Cronbach's alpha value obtained by Sfendla et al. (2018) was slightly higher. The alpha values in the study by Fathalla (2019) were higher than our results and greater than 0.9, which could be attributed to variations in translation that might have resulted in items capturing overlapping concepts. For El Sayed El Keshky et al. (2022), the value of Cronbach alpha was lower, and this may have been due to the translation being performed by independent certified translators. As such, a more literal rather than contextual translation may have been produced which could have caused some confusion for the participants. The sample obtained in our study was more than double the minimum size required for such research, meaning that the sample was more than sufficient to instill confidence in the results. Nevertheless, the Arabic version developed in this study requires further validation beyond the initial face validation conducted by a team member. To strengthen the instrument, future studies should involve participants from diverse populations, particularly those considered high-risk for the construct being measured. To further solidify the findings, comparisons should be made between the results of this scale and those obtained from well-established scales measuring the same construct, as well as with diagnoses provided by specialists.

Some limitations are important to consider, the current study involved medical students, a population known for experiencing high levels of stress and academic demands (Firth, 1986). This, along with potential social isolation due to the COVID-19 pandemic, could have influenced their responses to the SAS-SV. Specifically, stress and social isolation have been linked to increased smartphone use (Zwilling, 2022). Therefore, it is possible that these factors may have inflated scores on the SAS-SV, potentially affecting the interpretation of the results.

Conclusion

This study emphasizes the significance of understanding smartphone addiction in the Arab world by evaluating the Arabic version of the Smartphone Addiction Scale–Short Version (SAS-SV) among medical students in Jordan. With a Cronbach's alpha of 0.855, the results reflect strong reliability, consistent with previous validation studies. Item-level analyses identified item six as a key indicator of smartphone addiction in this population.

By employing a careful translation and back-translation protocol, this study presents a culturally adapted tool for assessing smartphone addiction among Arabic speakers, addressing a crucial gap in behavioral health research.

Future efforts should focus on validating this SAS-SV version across diverse demographic groups, including adolescents and working adults. Incorporating test-retest reliability and convergent validity with established diagnostic tools will enhance its effectiveness. Ultimately, a reliable and culturally relevant instrument will help tackle the growing issue of smartphone addiction in Arabic-speaking societies.

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