Does the number of hours spent daily on social media have any correlation to the Irritable Bowel Syndrome Symptoms in Saudi Adults?

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Abstract

Objective: There is substantial evidence that links usage of social media as being marginally associated with numerous harmful effects on the human body consisting of adverse symptoms differing in their manifestation and onset of action. These include including anxiety, depression, sleep deprivation, chronic fatigue, and functional gastrointestinal disorders (FGID). This study aimed to determine the relationship between the number of hours spent daily on social media and Irritable Bowel Syndrome (IBS) symptoms in Saudi adults.

Method: This is a cross-sectional study conducted among the Saudi adult population. The method of distribution was performed by providing a self-administered, semi-structured online questionnaire containing 16 items designated as demographic information (i.e., age, gender, marital state, and residency), the prevalence of IBS, and frequency of social media usage.

Results: Eight hundred and ten participants completed the survey (59.8% females vs. 40.2% males). The most common age group was 20-29 years (58.1%). 43% of participants recorded screen time of 6 hours or more, and 75.8% had used social media for six years or more. The prevalence of participants who were positive for IBS symptoms was 41.2%. In a multivariate regression model, female gender, associated chronic disease, and the use of Twitter were the significant independent predictors of IBS, but screen time did not predict the symptoms.

Conclusion: Consistent with the literature, there was a high prevalence of IBS among the adult population living in Saudi Arabia. This study also demonstrated that the duration of social media use and the number of hours of screen time were not independently accounted for as predictors of IBS. Further research is needed to establish the link between IBS and the use of social media in the region.

Keywords: Irritable Bowel Syndrome, social media, screen time, Saudi adults, gastrointestinal symptoms

Introduction

Social media usage has significantly increased in the past decade and is still growing in use and popularity locally and worldwide. Many social media applications and websites exist, such as YouTube, Facebook, WhatsApp, Twitter, Snapchat, Linked In, and many more. These platforms have become the primary mode of communication for many people as they provide a quick, efficient, and affordable way of communication.

The rise of social media use has been a concern in the medical field. Recent studies have shown that social media platforms are associated with psychological disorders such as depression and anxiety. Furthermore, they can affect self-esteem and sleep quality, affecting overall health [1]. According to the General Authority of Statistics of Saudi Arabia , the percentage of young people in the country who use social media has reached 98.43% [9].

The main social media applications used by Saudi society are used mainly for work, social, and leisure. YouTube is the most popular application used by Saudi society, with 92.3% actively engaging with the platform. Facebook is used largely for social, leisure, and professional purposes, and Wikipedia and Google Docs are more likely to be used for professional work rather than personal or social use. Twitter is also popular among the Saudi population. 62% of people use Twitter for social and leisure purposes. 95% of Saudis access social media at least once a week, and more than half of all users access social media every day [10].

Another concern is the use of social media by patients with functional gastrointestinal disorders (FGID) such as IBS. Irritable bowel syndrome (IBS) is a chronic condition that manifests changes in bowel movements. and abdominal pain or discomfort relieved after defecation that structural or biochemical changes cannot explain. 10-20% of adults under 50 are affected worldwide [2-3].

Diagnosing IBS can be problematic since there is no confirmatory diagnostic test. The diagnosis of IBS is based on the patient history and using the Rome criteria. Although the criteria were developed by functional gastrointestinal disorders specialists, they have made several revisions to make them clinically useful.

Rome IV criteria are currently used to diagnose IBS along with the patient history and physical examination. Patients with IBS are classified into subtypes based on their bowel habits, and this classification is useful as it helps treat symptoms.

There are four subtypes of IBS: IBS with constipation (IBS-C), IBS with diarrhea (IBS-D), mixed bowel habits (IBS-M), and unclassified IBS [7].

In Saudi Arabia, multiple studies have been conducted regarding the epidemiology of IBS in both undergraduate students and the adult population. A study in the central region based on Rome III criteria found that the prevalence was 30.5% [3].

A systemic review of Asian children that included Saudi Arabia estimated that the prevalence of IBS ranged from 2.8% to 25.7% [5].

Another cross-sectional study based on Rome IV criteria was conducted on undergraduate students from all regions across KSA and concluded that the prevalence of IBS among undergraduates was 15.8% [2].

A cross-sectional study based on Rome III criteria focused on undergraduate medical students and interns in Jeddah, Saudi Arabia, and found that the prevalence was 31.8% [6].

Furthermore, another cross-sectional study based on Rome II and Manning criteria done in Al Jouf on male students at secondary school found that the prevalence was 8.9% and 9.2% [4].

Finally, a cross-sectional study based on Rome IV criteria completed of board-certified medical doctors in Saudi Arabia found that the prevalence of IBS among physicians was 16.3% [8].

Although there are numerous studies regarding IBS prevalence, there is a lack of studies that looks for the association between social media use and IBS locally and globally.

Methods

The study design is a cross-sectional analytical study aimed at finding a relationship between hours spent daily on social media and irritable bowel syndrome symptoms in Saudi adults. The study was performed by providing a self-administered semi-structured online questionnaire that was taken from earlier research and edited to suit the objectives. Google forms is the online platform chosen to deliver the survey. The inclusion criteria are all Saudis adults who have completed all parts of the questionnaire. Submitted, written and informed consent was included in the study. The exclusion criteria are all non-Saudis citizens and the non-adult population. The participants were informed about the objectives of the study and were informed that their participation was voluntary and that confidentiality would be maintained. A 16-item questionnaire comprised demographic information, such as age, gender, marital state, and residence. The questionnaire also included questions about the prevalence of IBS and the frequency of of social media usage. Participants were selected randomly. The information was collected and kept confidential. After data collection, descriptive statistics were used to define the proportion of responses for each. Results were computed and reported as numbers and percentages. The relationship between the IBS and socio-demographic characteristics was conducted using the Chi-square test. Based on the significant results, a multivariate regression analysis was subsequently performed to determine the independent factors associated with having IBS, where the odds ratio and 95% confidence interval were also reported. Statistical significance was identified at $p<0.05$. The data analyses were performed using Statistical Packages for Software Sciences (SPSS) version 26. The Institutional Review Board approved the ethical approval of IMSIU.

Results

In total, 810 participants responded to our survey. As described in Table 1, 58.1% were aged between 20 - 29 years old, nearly 60% being females and mostly single (76.7%). Almost all (88.3%) were living in the Central region. Concerning education, 68.6% had achieved a bachelor's degree. Of them, 70.1% were continuing students, and only 12.7% were employed in the government sector. Approximately 54.4% spent 4 to less than 8 hours on work or study per day, and a half (50.4%) did not exercise regularly. Additionally, nearly two-thirds (65.4%) had a standard of 6 -7 hours sleep per day.

Table 1: Socio-demographic characteristics of participants (n=810)

Study Data	N (%)
Years of IBS diagnosis	
• Less than two years	92 (11.4%)
• 2 years to less than 4 years	81 (10.0%)
• 4 years to less than 6 years	67 (08.3%)
• 6 years to less than 8 years	37 (04.6%)
• More than 8 years	57 (07.0%)
• I don't have IBS	476 (58.8%)
Frequent experience of IBS symptoms (n=334)	
• Daily	82 (24.6%)
• Weekly	140 (41.9%)
• Monthly	71 (21.3%)
• Yearly	13 (03.9%)
• Other	28 (08.4%)
Number of hours spent in a day using mobile phone	
• 30 minutes	08 (01.0%)
• 1-2 hours	41 (05.1%)
• 2-3 hours	124 (15.3%)
• 4-5 hours	289 (35.7%)
• ≥6 hours	348 (43.0%)
Number of accounts on all social media platforms	
• 1-2 account	272 (33.6%)
• 2-3 account	169 (20.9%)
• 4-5 account	210 (25.9%)
• ≥6 account	159 (19.6%)
Number of years spent in social media	
• 1-2 years	18 (02.2%)
• 2-3 years	39 (04.8%)
• 4-5 years	139 (17.2%)
• ≥6 years	614 (75.8%)
Having business depending on social media	
• Yes	246 (30.4%)
• No	564 (69.6%)
Associated chronic disease	
• Yes	124 (15.3%)
• No	547 (67.5%)
• I don't know	139 (17.2%)
Smoking status	
• Yes	103 (12.7%)
• No	707 (87.3%)

Figure 1: Most used social media platform

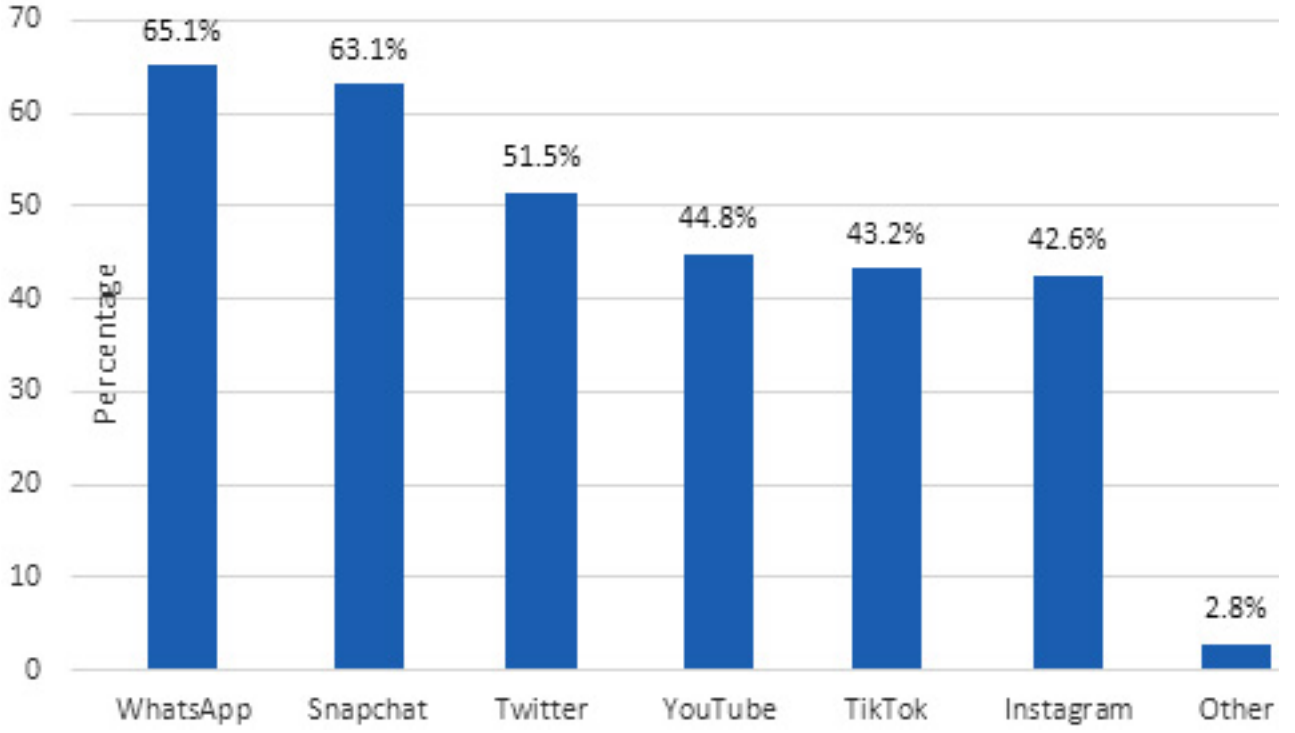

Figure 1 depicts the most commonly used social media platform of the respondents. It can be observed that WhatsApp was the most preferred social media platform (65.1%), followed by Snapchat (63.1%) and Twitter (51.5%).

Figure 2: Prevalence of IBS

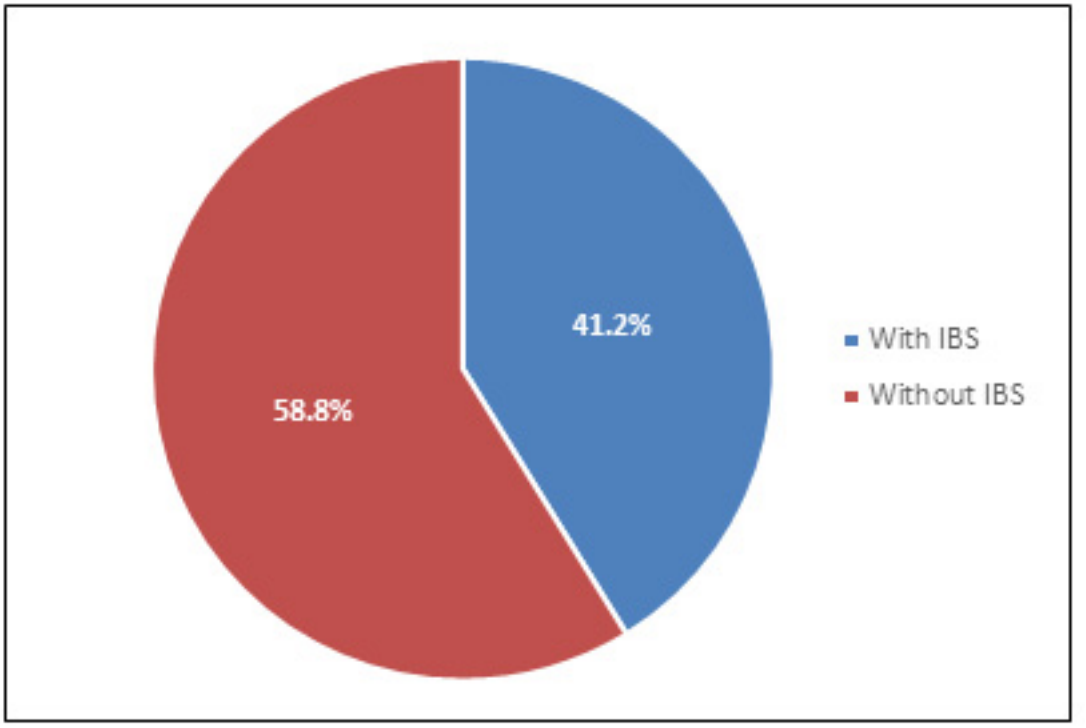

Table 2: IBS symptoms and frequent use of social media (n=810)

Study Data	N (%)
Years of IBS diagnosis	
• Less than two years	92 (11.4%)
• 2 years to less than 4 years	81 (10.0%)
• 4 years to less than 6 years	67 (08.3%)
• 6 years to less than 8 years	37 (04.6%)
• More than 8 years	57 (07.0%)
• I don't have IBS	476 (58.8%)
Frequent experience of IBS symptoms (n=334)	
• Daily	82 (24.6%)
• Weekly	140 (41.9%)
• Monthly	71 (21.3%)
• Yearly	13 (03.9%)
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Number of hours spent in a day using mobile phone	
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Number of years spent in social media	
• 1-2 years	18 (02.2%)
• 2-3 years	39 (04.8%)
• 4-5 years	139 (17.2%)
• ≥6 years	614 (75.8%)
Having business depending on social media	
• Yes	246 (30.4%)
• No	564 (69.6%)
Associated chronic disease	
• Yes	124 (15.3%)
• No	547 (67.5%)
• I don't know	139 (17.2%)
Smoking status	
• Yes	103 (12.7%)
• No	707 (87.3%)

In Table 2, 7% of the student population reported having more than eight years of IBS. Of those who had been diagnosed with IBS, 41.9% of them experience symptoms weekly. Regarding the use of mobile phones per day, 43% of them were using the gadget for 6 hours or more,' One-third (33.6%) had 1-2 accounts on all social media platforms and 75.8% had been using social media for approximately six years or more. The proportion of participants using social media for business purposes was 30.4%. The prevalence of respondents with associated chronic disease was 15.3%, and smoking participants were 12.7%.

Table 3: Relationship between IBS and the socio demographic characteristics of participants (n=810)

Factor	With IBS N (%) (n=334)	Without IBS N (%) (n=476)	P-value §
Age group			
• <30 years	266 (79.6%)	379 (79.6%)	0.995
• ≥30 years	68 (20.4%)	97 (20.4%)	
Gender			
• Male	89 (26.6%)	237 (49.8%)	**<0.001 ****
• Female	245 (73.4%)	239 (50.2%)	
Nature of the job			
• Student	233 (69.8%)	335 (70.4%)	
• Employed	75 (22.5%)	111 (23.3%)	0.705
• Unemployed	26 (07.8%)	30 (06.3%)	
Exercise per week			
• Yes	154 (46.1%)	248 (52.1%)	0.093
• No	180 (53.9%)	228 (47.9%)	
Sleeping hours per day			
• 4 – 5 hours	42 (12.6%)	51 (10.7%)	
• 6 – 7 hours	223 (66.8%)	307 (64.5%)	0.333
• ≥8 hours	69 (20.7%)	118 (24.8%)	
Number of hours spent in a day using mobile phone			
• ≤3 hours	56 (16.8%)	117 (24.6%)	
• 4 – 5 hours	116 (34.7%)	173 (36.3%)	**0.007 ****
• ≥6 hours	162 (48.5%)	186 (39.1%)	
Number of accounts in all social media platforms			
• <6 account	181 (54.2%)	260 (54.6%)	0.904
• ≥6 account	153 (45.8%)	216 (45.4%)	
Number of years spent in social media			
• <6 years	68 (20.4%)	128 (26.9%)	**0.033 ****
• ≥6 years	266 (79.6%)	348 (73.1%)	
Having business depending on social media			
• Yes	103 (30.8%)	143 (30.0%)	0.808
• No	231 (69.2%)	333 (70.0%)	
Associated chronic disease †			
• Yes	63 (18.9%)	61 (15.1%)	**0.006 ****
• No	204 (76.4%)	343 (84.9%)	
Smoking status			
• Yes	47 (14.1%)	56 (11.8%)	0.332
• No	287 (85.9%)	420 (88.2%)	
Most used social media platform *			
• WhatsApp	212 (63.5%)	315 (66.2%)	0.427
• YouTube	138 (41.3%)	225 (47.3%)	0.094
• Snapchat	228 (68.3%)	283 (59.5%)	**0.011 ****
• Instagram	152 (45.5%)	193 (40.5%)	0.160
• TikTok	163 (48.8%)	187 (39.3%)	**0.007 ****
• Twitter	199 (59.6%)	218 (45.8%)	**<0.001 ****
• Other	06 (01.8%)	17 (03.6%)	0.134

† Respondents who did not know of their associated chronic disease were excluded from the analysis. * Variable multiple response answers. § P-value has been calculated using Chi-square test. ** Significant at p<0.05 level.

When measuring the relationship between IBS and the socio-demographic characteristics of participants (Table 3), it was found that the prevalence of IBS symptoms was statistically significantly higher among gender females (p<0.001), those who used a mobile phone for 6 hours or more per day (p=0.007), those who had had six years or more of using social media platform (p=0.033), those who had an associated chronic disease (p=0.006), and those who used platforms such as Snapchat (p=0.011), TikTok (p=0.007) and Twitter (p<0.001). However, the prevalence of IBS among other criteria such as age group, nature of the job, exercise per week, sleeping hours per day, number of accounts on all social media platforms, having business depending on social media, and smoking status were not significantly different (p>0.05).

Table 4: Multivariate regression analysis to determine the independent significant factors associated with IBS (n=810)

Factor	AOR	95% CI	P-value
Gender			
• Male	Ref		
• Female	2.702	1.895 – 3.853	**<0.001 ****
Number of hours spent in a day using mobile phone			
• ≤3 hours	Ref		
• 4 – 5 hours	1.182	0.741 – 1.884	0.484
• ≥6 hours	1.208	0.833 – 1.753	0.320
Number of years spent on social media			
• <6 years	Ref		
• ≥6 years	1.199	0.810 – 1.773	0.364
Associated chronic disease †			
• Yes	1.845	1.220 – 2.790	**0.004 ****
• No	Ref		
Use of Snapchat	1.200	0.843 – 1.709	0.311
Use of TikTok	1.123	0.793 – 1.591	0.513
Use of Twitter	1.786	1.278 – 2.497	**0.001 ****

AOR – Adjusted Odds Ratio; CI – Confidence Interval.
† Respondents who did not know of their associated chronic disease were excluded from the analysis.
** Significant at p<0.05 level.

In a multivariate regression model (Table 4), we found that being a female, having an associated chronic disease, and using Twitter were the significant independent factors of IBS. This further indicates that compared to the males, the risk of having IBS could likely increase by at least 2.7-fold higher (AOR=2.702; 95% CI=1.895-3.853; p<0.001). Respondents with chronic disease were predicted to increase the risk of having IBS by at least 1.8 times higher than those without underlying conditions (AOR=1.845; 95% CI=1.220-2.790; p=0.004). Also, there was an increased odds of IBS among those who were regularly using Twitter by at least 1.7-fold higher (AOR=1.786; 95% CI=1.278-2.497; p=0.001), while the effect of gender, number of hours spent in a day using a mobile phone, number of years of using social media, use of Snapchat, use of TikTok did not significantly influence IBS after adjustment to regression model (p>0.05).

Discussion

This study attempted to evaluate if there is an existing relationship between social media usage/ screen time and IBS symptoms among Saudi adults. In most cases, the literature suggests a direct link between IBS and mental health disorders, including anxiety and depression[3-4,11-12], as well as the correlation between the use of social media with anxiety and depression [13-17]. However, the association between IBS and the number of hours spent using social media has not been studied thoroughly here in Saudi Arabia. Thus, the outcome of this study would be an essential contribution to the literature. The evidence of this study revealed that although high levels of screen time and significant number of years engaging in social media activities were associated with a higher prevalence of IBS, the overall predictive effect was not significant ($p>0.05$). This is consistent with the paper conducted among American adolescents[1]. The study finds no meaningful relationship between screen time per day and the number of platforms used by adolescents with functional abdominal pain. More investigations are required to shed light on the effect of excessive usage of social media on functional gastrointestinal disorders within the general population.

The prevalence of IBS in our population was 41.2% which was within the prevalence range of the studies conducted in the USA [1], Riyadh [3], Jeddah [6], and Egypt [18], varying from 30% to 45%. However, a lower prevalence of IBS was reported in studies conducted in Al Ahsa [2] and Dammam [8], with 15.8% and 16.3%, respectively. The incidence of IBS differs by the sample population's characteristics and the methodology used in the study. Thus, interventional studies are warranted to find the possible solution for the high prevalence of IBS, given that many predictors are modifiable.

In our study, a higher prevalence of IBS was more common among females and was predicted to increase the risk by at least 2.7 times higher than their male counterparts. Similarly, respondents with associated chronic diseases and those using Twitter regularly were also the predictive factors of IBS, which could increase the chance of having IBS by at least 1.8 times higher. Several papers documented a correlation between gender and IBS, where the incidence of symptoms was significantly higher in females [2-3,6,8,11,18]. However, an article published by Lackner et al. [19] reported that social support was inversely related to IBS symptom severity, indicating that social support might be a protected factor of IBS. They further concluded that the study found links between the perceived adequacy of social support to the global severity of symptoms of IBS and its cardinal symptom. It also suggests that the mechanism by which social support alleviates pain is through a reduction in stress levels.

Similarly, a study reported in Dammam, KSA [8], found students with a family history of IBS had a higher prevalence rate of the symptoms and that engaging in regular exercise could be a preventative measure against IBS. Also, they discovered that there was a significant relationship with anxiety but not with depression. Providing psychological support to this group of the population is imperative.

The most commonly used social media by our population was WhatsApp (65.1%), followed by Snapchat (63.1%) and Twitter (51.5%). Other social media platforms being used were YouTube (44.87%), TikTok (43.2%) and Instagram (42.6%). We also discovered a higher incidence of IBS among participants who regularly used Snapchat, TikTok, and Twitter. In a study carried out by Samuel et al. [1], YouTube (92%) and Instagram (88%) were the most commonly preferred social media platforms by American adolescents adding that social media was more often used for entertainment, reading, and productivity by children with functional abdominal pain. This indicates that the preference for social media and its effect on gastrointestinal disorders differs by age. However, more investigations are needed to determine the most commonly used social media associated with IBS.

Conclusion

Consistent with the literature, there was a high prevalence rate of IBS among the adult population living in Saudi Arabia. It is predicted that the female participants who have associated chronic diseases were significantly affected by the symptoms. However, the duration of social media use and the number of hours of screen time were not independently accounted for as predictors of IBS. Further research is needed to establish the link between IBS and the use of social media in our region.

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