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سمة بيانوبي  
جامعة الملك سعود

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## Post-COVID-19: The Effect of Social Anxiety on the Continued Wearing of Face Masks in Saudi Arabia

Basma Bianoony , DR. Hanan AL Fayezi  
b12asmah@gmail.com

**Abstract.** Individuals experiencing social anxiety may wear face masks as a safety behavior, which could potentially lead to prolonged adherence, even after the conclusion of the COVID-19 pandemic. In this research, an online questionnaire was distributed to a convenience sample of 370 xxxx citizens. The questionnaire comprised the three-dimensional Social Anxiety Scale (cognitive, social, and physical) to assess levels of social anxiety, as well as an open-ended question to gauge the inclination to continue wearing masks post-pandemic. No statistically significant associations were found between social anxiety and mask-wearing on cognitive or social dimensions or on the scale overall. However, statistically significant relationships were observed on the physical dimension, suggesting that individuals with social anxiety may be more inclined to utilize masks as a safety behavior to address concerns related to their physical appearance. No gender differences were found in the rates of social anxiety, but higher rates were observed among older adults with higher levels of educational attainment.

**Keywords:** Social anxiety, mask, xxxx, safety behavior, COVID-19, coronavirus.

### 1. Introduction

A large body of scholars and researchers have studied the effects of the pandemic on mental health outcomes, especially depression and anxiety (Saint & Moscovitch, 2021; Kindred & Bates 2023). For instance, Asmundson (2020) found that people with anxiety-related or mood disorders were more negatively affected by COVID-19 than those without such disorders. Most notably, levels of social anxiety increased during the pandemic (Samantaray et al., 2022).

Family studies have revealed that all major subtypes of anxiety disorders are hereditary in families. For instance, the results of more than a dozen-controlled family studies of probands with anxiety disorders converge in demonstrating a three to five-fold increased risk of anxiety disorders among first-degree relatives of affected probands (Merikangas et al., 2003). Psychosocial factors such as parenting, peer interactions and culture can all play an important role in the development of social anxiety disorder (SAD), as adults with this condition often report having experienced negative parenting qualities (Schneier & Goldmark, 2015).

SAD is a marked, intense fear or anxiety about social situations in which individuals feel they may be scrutinized by others. In children, this fear or anxiety will occur in peer settings, as well as during interactions with adults (American Psychiatric Association, 2022). Numerous theories have been proposed in order to elucidate the nature of social anxiety. For instance, cognitive theories propose that cognitive bias partially explains the etiology and maintenance of this disorder (Musa & Lépine, 2020). Alternatively, self-presentation theory suggests that people experience social anxiety when they are motivated to make a desirable impression on others, but harbor doubts about their ability to do so (Catalino et al., 2012). Cognitive behavioral therapy (CBT) has been found to be effective in treating social anxiety and alleviating its symptoms.

In 2008, SAD was the most common anxiety disorder in the USA. It has an early age of onset—11 years in approximately 50% of individuals and 20 years in about 80%—and is a risk factor for subsequent depressive illness and substance abuse (Stein & Stein, 2008). Those with social anxiety create exaggerated negative images of themselves based on the interoception of anxiety symptoms. Consequently, they assume that peers will evaluate them negatively due to their appearance. Therefore, to reduce anxiety symptoms, those with this condition engage in unhelpful symptom concealing and safety behavior, including social avoidance (Kennair & Kleppestø, 2016).

In xxxx, social anxiety is widespread. The results of a study administering the Liebowitz Social Anxiety Scale revealed that the level of social anxiety among secondary school boys was 11.7%, while 35.9% of students had severe SAD and 41% reported that their parents had criticized them occasionally, whereas 14.1% stated that their parents had criticized them often. In 9.9% of students, this criticism typically occurred in front of other people. Students whose parents were usually upset with them and criticized them were at an almost fivefold higher risk of social anxiety than those whose parents never displayed anger toward them, or criticized them only occasionally (Khalil et al., 2016).

Throughout the pandemic, it was imperative for people either to isolate themselves or wear masks during social interactions in order to prevent the spread of COVID-19. Individuals grappling with social anxiety often resorted to masks as a safety mechanism (Saint & Moscovitch, 2021). Our concern in this study centers on the possibility that individuals with social anxiety may have continued to wear masks, even after the pandemic had subsided, using them to hide signs of anxiety or perceived physical imperfections.

For instance, some individuals with social anxiety may believe that wearing a mask muffles their voices, potentially making them feel more secure. Paradoxically, this may heighten their perception of being judged negatively in social situations, further exacerbating the anxiety they commonly experience (Saint & Moscovitch, 2021). Moreover, some individuals with social anxiety may view mask-wearing as a safety behavior that helps to alleviate their distress about self-exposure and negative evaluation. Safety behavior refers to actions performed by anxious individuals in an attempt to minimize or prevent a feared catastrophe (Kirk et al., 2019). Research consistently underscores the role of safety behavior in both the development and perpetuation of anxiety disorders (Blakey, 2016). Cognitive models further suggest that SAD is sustained through the employment of safety behavior (Gray et al., 2019). Notably, previous research has indicated that the utilization of social safety behavior is more prevalent among individuals with SAD than those with post-traumatic stress disorder or individuals who do not have a history of mental health issues (Gray et al., 2019).

Social anxiety is associated with impaired social functioning at social events such as when interacting with people, talking with people in authority, and meeting new people. Therefore, wearing a mask in situations where it is not necessary may serve as a safety behavior aimed at mitigating fears and worries that they will be negatively judged due to perceived flaws (Saint & Moscovitch, 2021). However, despite the perception that wearing masks may increase comfort and reduce anxiety during social interactions, it can also heighten anxiety due to the belief that they are being negatively judged by others (Saint & Moscovitch, 2021). Moreover, this behavior deviates from social norms, as it is uncommon to see people wearing masks, now that the pandemic has ended. Such deviation may draw undue attention to individuals with social anxiety, potentially intensifying it. Hence, this research aimed to explore the motivations underlying the use of face masks by such individuals. It aimed to answer two fundamental questions: whether individuals with social anxiety continued to wear masks after the pandemic ended, potentially characterizing it as a safety measure; and whether there are any

statistically significant variations in social anxiety scores with respect to gender, age, and educational level.

Existing studies have also left a critical gap unaddressed. They have examined the use of masks, primarily in the context of health preservation and adherence to public health guidelines without investigating the extent to which masks function as a safety measure for individuals with social anxiety. This study aimed to illuminate whether the use of masks can indeed be categorized as a safety behavior within the context of social anxiety, thereby generating a more comprehensive understanding of this phenomenon.

## 2. Material and Methods

### 2.1 Participants

A convenience sample consisting of 370 Saudis was recruited for this study. The ages of participants ranged from 18 to 50, with a mean age of 29.62. As indicated in Table 1, the sample was predominantly female (87.3%). Slightly more than half (51.8%) had been educated to university level and above. Only 37.9% of the sample always or sometimes continued to wear masks after the end of the pandemic.

Table 1

*Characteristics of the sample*

| Variable   | Categories        | N   | %    |
|--|-------------------|-----|------|
| Age  | Under 20          | 104 | 28.1 |
|  | 21-25             | 101 | 27.3 |
|  | 26-35             | 45  | 12.2 |
|  | 36-45             | 72  | 19.5 |
|  | Over 45           | 48  | 13.0 |
| Gender   | Male              | 47  | 12.7 |
|  | Female            | 323 | 87.3 |
| Educational level  | Below high school | 143 | 38.6 |
|  | High school       | 35  | 9.5  |
|  | University        | 143 | 38.6 |
|  | Postgraduate      | 49  | 13.2 |
| Continued wearing of the mask after the end of the COVID-19 pandemic | Yes               | 41  | 11.1 |
|  | Sometimes         | 99  | 26.8 |
|  | No                | 230 | 62.2 |

### 2.2 Procedure

The research was approved by the Ethics Committee of xxxx (KSU-HE-22-881). An electronic version of the questionnaire was generated utilizing Google Forms. Subsequently, the survey was disseminated across various social media platforms. Each prospective participant was provided with an information document encompassing the objectives of the research, procedural details, and assurances regarding confidentiality. Those individuals expressing a willingness to participate were then required to complete an electronic consent form prior to proceeding to the demographic information sheet and the scale items. Data were collected from 2023/2/4 to 2023/4/9.

### 2.3 Instruments and Measures

The online questionnaire was divided into three sections, the first of which was a demographic data sheet used to elicit information on three socio-demographic attributes: (1) age, (2) gender, and (3) educational level. The second section comprised the three-dimensional Social Anxiety Scale (SAS) (Al-Ruwaitea, 2004), and the third section included an open question to assess whether participants continued to wear a mask after the end of the COVID-19 pandemic and whether people with social anxiety do so as a safety behavior.

#### 2.3.1 The Three-dimensional Social Anxiety Scale

The SAS consists of 44 items, each of which is rated on a 5-point Likert scale (0-4). Higher scores indicate higher levels of social anxiety. The scale has been found to demonstrate good internal reliability with high Cronbach's  $\alpha$  coefficients for the cognitive dimension ( $\alpha = 0.82$ ), social dimension ( $\alpha = 0.8$ ), physical dimension ( $\alpha = 0.9$ ), and the scale as a whole (0.92) (Al-Ruwaitea, 2004). In this study, internal reliability was as follows: cognitive dimension ( $\alpha = 0.93$ ), social dimension ( $\alpha = 0.93$ ), physical dimension ( $\alpha = 0.94$ ), and the overall scale (0.97). Correlation coefficients between the items of the scale and the total score for the dimension to which they belong are presented in Table 2, while correlation coefficients between the dimensions of the SAS and the total score for the scale are presented in Table 3.

**Table 2: Correlation coefficients between the items on the scale and the total score for the dimension to which they belong**

| Dimensions |    | r        | r  |
|------------|----|----------|----|
| Cognitive  | 1  | **0.7656 | 7  |
|            | 2  | **0.8218 | 8  |
|            | 3  | **0.7620 | 9  |
|            | 4  | **0.5358 | 10 |
|            | 5  | **0.7131 | 11 |
|            | 6  | **0.8640 | 12 |
| Social     | 13 | **0.6821 | 20 |
|            | 14 | **0.6771 | 21 |
|            | 15 | **0.8017 | 22 |
|            | 16 | **0.8170 | 23 |
|            | 17 | **0.7968 | 24 |
|            | 18 | **0.4096 | 25 |
| Physical   | 19 | **0.8155 |    |
|            | 26 | **0.6094 | 36 |
|            | 27 | **0.6503 | 37 |
|            | 28 | **0.5428 | 38 |
|            | 29 | **0.6653 | 39 |
|            | 30 | **0.6922 | 40 |
|            | 31 | **0.6359 | 41 |
|            | 32 | **0.7546 | 42 |
|            | 33 | **0.8103 | 43 |
|            | 34 | **0.7654 | 44 |
|            | 35 | **0.6715 |    |

\*\*<0.01

**Table 3: Correlation coefficients between the dimensions of the SAS and the overall scale**

| Dimensions | r        |
|------------|----------|
| Cognitive  | **0.9008 |
| Social     | **0.9179 |
| Physical   | **0.9676 |

### 2.3 Data Analysis

The Statistical Package for the Social Sciences (SPSS) v.24 was employed for data analysis. The relationship between the persistence of face-mask usage beyond the conclusion of the pandemic and the presence of social anxiety was elucidated through calculation of Pearson correlation coefficients. T-tests were conducted to analyze data for the categorical variable (gender), while analysis of variance (ANOVA) was performed to analyze the data for age and level of education. The Scheffe test was performed to detect the source of the differences that emerged. P-values below 0.05 were considered statistically significant.

### 3. Results

#### 3.1 The relationship between social anxiety and the continued wearing of a mask after the end of the pandemic

The results indicated that 140 (37.9%) people continued to wear a mask after the end of the pandemic. To determine whether these people had SAD, Pearson correlation coefficients were calculated to measure the relationship between scores on the subdimensions and the overall SAS, as well as the continued wearing of a mask after the end of the epidemic. The results are presented in Table 4.

**Table 4 Pearson correlation coefficients between scores on the dimensions of the SAS and the continued wearing of a mask after the end of the pandemic**

| Dimensions        | r       |
|-------------------|---------|
| Cognitive         | 0.0683  |
| Social            | 0.0925  |
| Physical          | 0.1095* |
| Overall SAS score | 0.1015  |

\* $< 0.05$

As indicated in Table 4, a weak, non-significant association exists between the continued use of face masks after the conclusion of the pandemic and the scores on cognitive and social dimensions of the SAS. Furthermore, the results revealed a positive and statistically significant correlation between the continued use of face masks after the conclusion of the pandemic and scores obtained on the physical dimension of the SAS ( $p < .05$ ). This suggests that a prolonged adherence to mask-wearing post-epidemic may result in higher scores on this particular dimension of the SAS. Additionally, the results indicated a direct, but non-significant positive correlation between continued mask-wearing after the conclusion of the pandemic and the overall score on the SAS. This signifies a potential association between continued mask usage and elevated levels of social anxiety among the participants.

### 3.2 Reasons for continuing to use face masks post-COVID-19

In the analysis of responses to an open-ended question regarding the reasons for continued mask usage upon conclusion of the pandemic, particularly regarding its potential utilization as a safety behavior among individuals with SAD, the following patterns emerged:

Overall, 55 individuals did not provide an answer to this question. A total of 170 respondents indicated that they had discontinued mask-wearing following the end of the epidemic, while 140 respondents reported that they continued to wear masks. Among those who continued mask usage, 51 cited reasons such as fear of contracting diseases or causing harm to others.

An additional 34 respondents stated that they persisted in wearing a mask due to factors such as a lack of self-confidence, feelings of embarrassment regarding their facial features, perceived facial flaws, or shyness in social interactions. Notably, 30 individuals specified that they exclusively wore masks in crowded settings or in locations where disease transmission remained a concern such as hospitals or places where wearing a mask remained mandatory. Twelve individuals stated the continued use of masks as an alternative to a traditional face veil such as the “niqab”. Seven respondents cited habitual adherence to mask-wearing which had become ingrained in their routines, while two individuals continued to wear a mask to avoid unpleasant odors. Finally, three individuals reported wearing masks occasionally, without a consistent or specific rationale.

### 3.3 Differences in SAS scores due to gender, age, and educational level

The next step in the analysis was to identify whether there were any statistically significant differences in scores on the SAS with respect to gender, age, and educational level. For gender, a t-test was performed, the results of which are presented in Table 5.

#### 3.3.1 Differences in SAS scores due to gender

**Table 5 Differences in scores on the sub-dimensions and overall SAS due to gender**

| Dimensions      | Gender | n   | Mean | SD   | t    | P value |
|-----------------|--------|-----|------|------|------|---------|
| Cognitive       | M      | 47  | 0.75 | 0.75 | 0.14 | 0.891   |
|                 | F      | 323 | 0.77 | 0.87 |      |         |
| Social          | M      | 47  | 1.12 | 0.84 | 0.70 | 0.483   |
|                 | F      | 323 | 1.03 | 0.86 |      |         |
| Physical        | M      | 47  | 0.70 | 0.86 | 0.49 | 0.627   |
|                 | F      | 323 | 0.76 | 0.81 |      |         |
| Total SAS score | M      | 47  | 0.84 | 0.74 | 0.04 | 0.972   |
|                 | F      | 323 | 0.84 | 0.77 |      |         |

As indicated in the table, no statistically significant differences were observed with regard to gender.

#### 3.3.2 Differences in SAS scores due to age

ANOVA tests were then performed in order to determine whether there were any differences in scores on the SAS with respect to age and educational level, the results of which are presented in Tables 6 and 8, respectively.

**Table 6. Differences in scores on the sub-dimensions and overall SAS due to age**

| Dimensions      | Source of variation | Sum of squares (ss) | df  | Mean sum of squares (MSS) | (F)   | p-value |
|-----------------|---------------------|---------------------|-----|---------------------------|-------|---------|
| Cognitive       | Between Groups      | 33.94               | 4   | 8.49                      | 13.22 | 0.01    |
|                 | Within Groups       | 234.22              | 365 | 0.64                      |       |         |
| Social          | Between Groups      | 24.19               | 4   | 6.05                      | 9.04  | 0.01    |
|                 | Within Groups       | 244.16              | 365 | 0.67                      |       |         |
| Physical        | Between Groups      | 28.39               | 4   | 7.10                      | 11.94 | 0.01    |
|                 | Within Groups       | 216.99              | 365 | 0.59                      |       |         |
| Total SAS score | Between Groups      | 27.74               | 4   | 6.93                      | 13.14 | 0.01    |

As indicated in Table 6, the values of F are significant (0.01) on all three dimensions: (cognitive, social, and physical) and on the overall SAS score due to age. The Scheffe test was performed in order to detect the source of these differences, the results of which are presented in Table 7

**Table 7 The Scheffe test comparing scores on SAS dimensions and total score by age group**

| Dimensions      | Age group | Mean | 20 ≤ | 21-25 | 26-35 | 36-45 | 45 ≥ |
|-----------------|-----------|------|------|-------|-------|-------|------|
| Cognitive       | 20 ≤      | 1.11 |      |       |       | *     | *    |
|                 | 21-25     | 0.91 |      |       |       | *     | *    |
|                 | 26-35     | 0.70 |      |       |       |       |      |
|                 | 36-45     | 0.32 |      |       |       |       |      |
|                 | 45 >      | 0.44 |      |       |       |       |      |
| Social          | 20 ≤      | 1.31 |      |       | *     | *     | *    |
|                 | 21-25     | 1.22 |      |       | *     | *     | *    |
|                 | 26-35     | 0.75 |      |       |       |       |      |
|                 | 36-45     | 0.75 |      |       |       |       |      |
|                 | 45 >      | 0.78 |      |       |       |       |      |
| Physical        | 20 ≤      | 1.09 |      |       | *     | *     | *    |
|                 | 21-25     | 0.90 |      |       | *     | *     | *    |
|                 | 26-35     | 0.47 |      |       |       |       |      |
|                 | 36-45     | 0.46 |      |       |       |       |      |
|                 | 45 >      | 0.43 |      |       |       |       |      |
| Total SAS score | 20 ≤      | 1.16 |      |       | *     | *     | *    |
|                 | 21-25     | 0.99 |      |       | *     | *     | *    |
|                 | 26-35     | 0.61 |      |       |       |       |      |
|                 | 36-45     | 0.51 |      |       |       |       |      |
|                 | 45 >      | 0.54 |      |       |       |       |      |

The Scheffe test revealed that on the cognitive dimension, respondents aged 20 years or under and respondents aged 21-25 years scored significantly lower than those aged 36-45 years and those aged over 45 years. On the social dimension, respondents aged 20 years or under and respondents aged 21-25 years scored significantly lower than those aged 26-35 years, 36-45 years, and over 45 years. On the physical dimension, respondents aged 20 years or under and respondents aged 21-25 years scored significantly lower than those aged 26-35 years, 36-45 years, and over 45 years. Regarding the total score on the SAS, respondents aged 20 years or under scored significantly lower than those aged 26-35 years, 36-45 years, and over 45 years. These findings underscore the presence of age-related variations on the dimensions and overall SAS scores, with younger respondents generally having lower scores in comparison with their older counterparts.

### 3.3.3 Differences in SAS scores due to educational level

**Table 8 Differences in scores on the sub-dimensions and overall SAS due to educational level**

| Dimensions      | Source of variation | Sum of squares (ss) | df  | Mean sum of squares (MSS) | (F)  | p-value |
|-----------------|---------------------|---------------------|-----|---------------------------|------|---------|
| Cognitive       | Between Groups      | 11.46               | 3   | 3.82                      | 5.45 | 0.001   |
|                 | Within Groups       | 256.70              | 366 | 0.70                      |      |         |
| Social          | Between Groups      | 8.71                | 3   | 2.90                      | 4.09 | 0.007   |
|                 | Within Groups       | 259.64              | 366 | 0.71                      |      |         |
| Physical        | Between Groups      | 13.08               | 3   | 4.36                      | 6.87 | 0.000   |
|                 | Within Groups       | 232.29              | 366 | 0.64                      |      |         |
| Total SAS score | Between Groups      | 11.04               | 3   | 3.68                      | 6.56 | 0.000   |
|                 | Within Groups       | 205.36              | 366 | 0.56                      |      |         |

As indicated in Table 8, the values of F are significant (0.01) on all three dimensions: (cognitive, social and physical), and on the total SAS score due to differences in educational level. The Scheffe test was performed in order to detect the source of these differences, the results of which are presented in Table 9.

**Table 9***The Scheffe test comparing scores on SAS dimensions and total score by educational level*

| Dimensions      | Educational level | Mean | Below high school | High school | University | Post graduate |
|-----------------|-------------------|------|-------------------|-------------|------------|---------------|
| Cognitive       | Below high school | 0.81 |                   |             |            | *             |
|                 | High school       | 1.00 |                   |             |            | *             |
|                 | University        | 0.80 |                   |             |            | *             |
|                 | Postgraduate      | 0.34 |                   |             |            |               |
| Social          | Below high school | 1.07 |                   |             |            | *             |
|                 | High school       | 1.16 |                   |             |            |               |
|                 | University        | 1.33 |                   |             |            | *             |
|                 | Postgraduate      | 0.65 |                   |             |            |               |
| Physical        | Below high school | 0.77 |                   |             |            | *             |
|                 | High school       | 0.88 |                   |             |            | *             |
|                 | University        | 0.86 |                   |             |            | *             |
|                 | Postgraduate      | 0.28 |                   |             |            |               |
| Total SAS score | Below high school | 0.87 |                   |             |            | *             |
|                 | High school       | 0.99 |                   |             |            | *             |
|                 | University        | 0.92 |                   |             |            | *             |
|                 | Postgraduate      | 0.41 |                   |             |            |               |

The Scheffe test revealed significant differences on various dimensions of the SAS and the total score with respect to educational level. Specifically, on the cognitive dimension, respondents with less than a high-school degree, a high-school degree and a bachelor's degree all had significantly lower scores than those with postgraduate studies. On the social dimension, respondents with less than a high-school degree and those with a bachelor's degree scored significantly lower than those with postgraduate studies. On the physical dimension, respondents with less than a high-school degree, a high-school degree and a bachelor's degree scored significantly lower than those with postgraduate studies. Regarding the total score for the SAS, respondents with less than a high-school degree, a high-school degree and a bachelor's degree scored significantly lower than those with postgraduate studies. Overall, individuals with lower educational levels generally scored lower than those with higher levels of education.

#### 4. Discussion

Social anxiety can be an enormous struggle for those suffering from the condition who typically engage in safety behavior to relieve their feelings (Stentz & Cougle, 2022; Evans et al., 2021). However, this study revealed no statistically significant relationship between social anxiety and mask-wearing on the cognitive dimension, social dimension, and the SAS overall. This suggests that for these specific aspects, the mask-wearing behavior of individuals with social anxiety in xxxx, did not significantly differ from that of people without social anxiety. However, the presence of a statistically

significant relationship between social anxiety and mask-wearing on the physical dimension indicates a specific connection between social anxiety and the propensity to wear masks in response to physical concerns or perceptions.

The results for the cognitive and social dimensions could be attributed to several cultural and religious factors that shape social norms and behavior in the region. For example, in xxxx culture, it is common for individuals, particularly women, to cover their faces as a matter of religious and cultural tradition. This practice extends to wearing veils (niqab) or face coverings in public. Thus, in this context, wearing a face mask may not carry the same connotation of concealing one's identity or social anxiety. The cultural acceptance of facial coverings could mitigate any perceived link between mask-wearing and social anxiety; consequently, the wearing of face masks in xxxx may be seen as a religious and communal responsibility, rather than a reflection of social anxiety. Furthermore, most of the studies that linked the continued wearing of masks to social anxiety were conducted in Western countries which are characterized by an individualistic culture (Saint & Moscovitch, 2021), unlike the Kingdom of xxxx, which is characterized by a collectivistic culture which emphasizes the importance of community and group cohesion. In such cultures, individuals may be less prone to self-consciousness and social anxiety, as they prioritize group harmony and shared values over individual concerns.

Conversely, the relationship between social anxiety (the physical dimension) and mask-wearing can be explained by factors such as physical appearance concerns. Social anxiety often encompasses heightened self-consciousness and concerns about one's physical appearance, including facial features. Individuals with social anxiety may be more inclined to wear masks as a means of concealing perceived physical flaws or to reduce the visibility of their facial expressions. Moreover, the physical dimension of social anxiety may manifest itself as a heightened fear of physical symptoms or reactions during social interactions (e.g., blushing, sweating). Hence, wearing a mask may be perceived as a safety behavior performed in order to prevent or mask these physical symptoms during social interactions in the context of xxxx, culture. Further research could investigate more deeply the specific factors contributing to this dimension of mask usage among individuals with social anxiety in xxxx.

The results revealed no statistically significant differences in social anxiety between males and females. This contradicts the results of numerous studies which have reported that SAD rates are higher among females (Asher et al., 2017; Beesdo et al., 2007; Kessler et al., 2012), although one study found that social anxiety is more common among males than females in xxxx (Chaleby, 1987). However, our results are consistent with those of Jefferies and Ungar (2020), who reported that the prevalence and severity of social anxiety did not differ between genders. Our findings can be interpreted in several ways. Firstly, the small number of males in this sample ( $n = 47$ ) compared with females ( $n = 323$ ) may have impacted the results. Secondly, gender roles and expectations differ across cultures. In xxxx, traditional gender roles may not give rise to significant differences in social anxiety rates between men and women, as both genders may experience similar societal pressures and expectations in certain social situations.

The results also revealed that older age groups score higher with respect to social anxiety than younger age groups. This contradicts most studies which have reported that younger adults suffer from social anxiety more than older adults (Burstein et al., 2011; Gretarsdottir et al., 2004; Jefferies & Ungar, 2020; Merikangas et al., 2010). However, this result can be understood by examining the effects of the COVID-19 pandemic and the associated quarantine measures which have had a significant impact

on mental health and well-being for people of all ages. For instance, a systematic review by Kindred and Bates (2023) concluded that social anxiety has increased in the general adult population. In terms of educational level, the results of Chaleby's (1987) study revealed that individuals with higher educational levels suffer from social anxiety more than individuals with lower educational levels, but contradicts those of Kupper and Denollet (2012) where higher rates of social anxiety were observed among females with lower educational status. It is, however, essential to recognize that social anxiety is a complex phenomenon influenced by a combination of individual, environmental, and cultural factors. Educational status alone is not a definitive predictor of social anxiety and many highly educated individuals do not experience significant social anxiety. However, the results of the current study could be due to sample size or the methodology employed. Alternatively, people with higher educational status may be more likely to engage in social or professional settings that require frequent social interactions such as networking events, conferences, or leadership roles. This pressure to excel academically and professionally may lead to heightened social anxiety in situations where they feel they are being evaluated or judged.

## 5. Conclusion

A statistically significant association between elevated scores on the physical dimension of the SAS and the persistent use of masks beyond the conclusion of the epidemic could be attributed to the utilization of masks as a safety behavior to manage concerns related to physical appearance such as perceived facial imperfections. Moreover, it was found that higher rates of SAD appear to be present among older adults with higher educational attainment, but such rates did not differ according to gender.

Although these observations stand in contrast to the prevailing trends in social anxiety research, it is important to take into account the cultural and religious context of xxxx which considerably affects social interactions, which in turn are affected by this disorder. It is therefore imperative to conduct further research into the landscape of SAD in the Kingdom of xxxx, especially post-pandemic, in order to develop a more comprehensive understanding of this phenomenon in this region.

## Declaration of Competing Interest

The authors declare no conflict of interest.

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## بعد جائحة كوفيد-19: تأثير القلق الاجتماعي على استمرار ارتداء كمامات الوجه في المملكة العربية السعودية

بسمة عبد الرحمن بيانوني، د. حنان محمد الفايز  
جامعة الملك سعود

مستخلص. قد يرتدي الأفراد الذين يعانون من القلق الاجتماعي أقنعة الوجه كسلوك أمان، مما قد يؤدي إلى ارتدائها بشكل مستمر، حتى بعد انتهاء جائحة كوفيد-19. في هذا البحث تم توزيع استبيان إلكتروني على عينة ملائمة مكونة من 370 مواطناً سعودياً. وتضمن الاستبيان مقياس القلق الاجتماعي ثلاثي الأبعاد (المعرفي والاجتماعي والجسدي) لتقدير مستويات القلق الاجتماعي، بالإضافة إلى سؤال مفتوح لقياس الميل إلى الاستمرار في ارتداء الكمامات بعد الجائحة. لم يتم العثور على ارتباطات ذات دلالة إحصائية بين القلق الاجتماعي وارتداء القناع على الأبعاد المعرفية أو الاجتماعية أو على المقياس العام. ومع ذلك، لوحظت علاقات ذات دلالة إحصائية على البعد الجسدي، مما يشير إلى أن الأفراد الذين يعانون من القلق الاجتماعي قد يكونون أكثر ميلاً لاستخدام الأقنعة كسلوك أمان لمعالجة المخاوف المتعلقة بظهورهم الجسدي. لم يتم العثور على فروق بين الجنسين في معدلات القلق الاجتماعي، ولكن لوحظت معدلات أعلى بين كبار السن ذوي مستويات أعلى من التحصيل العلمي.

الكلمات المفتاحية: القلق الاجتماعي، الكمامات، السعودية، سلوك السلامة، كوفيد-19، فيروس كورونا.