

The Prevalence and Sociodemographic Correlates of Social phobia in Oman: Online national survey

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Abstract

Background: Social Anxiety Disorder (SAD) is among the most common anxiety disorders worldwide with data largely emerging from the Euro-American and Pacific Rim populations. In contrast, there is a dearth of studies among the populations of Arabian Gulf countries including Oman. This study has two interrelated aims: (i) to explore the prevalence of SAD among Omani adults, and (ii) to tease out the links between sociodemographic factors and SAD in Oman.

Methods: A cross-sectional study via an online survey was conducted among 1019 adult Omani nationals residing in Oman. The presence of SAD was assessed using the Arabic version of the Liebowitz Social Anxiety Scale (LSAS).

Result: Nearly half the participants (45.9%, n=468) endorsed themselves as having features of SAD as defined by LSAS. In the multivariate logistic analysis, participants below 40 years of age were 1.6 times (OR=1.568, p=0.026) more likely to have SAD than those who were 40 and older. Women were 1.3 times (OR=1.348, p=0.038) more likely to endorse SAD than men. Participants who had secondary or undergraduate education were respectively 1.5 times (OR=1.45, p=0.014) and 2.5 times (OR=2.509, p<.001) to have SAD than who were postgraduates.

Conclusion: The present data suggest that 45.9% of the participants reached the cut-off for case-ness in LSAS, which is high compared to reports from other populations. As online survey respondents tend to belong to similar demographics, the current results need not be representative of the Omani adult population, which calls for studies that adopt more inclusive survey methods.

Keywords: Social Anxiety disorder, Social phobia, Online survey, Adult, Oman, Liebowitz Social Anxiety Scale

Introduction:

Social Anxiety Disorder (SAD), more commonly known as social phobia, is characterized by morbid fears of being the focus of attention, or fear of conducting oneself that would lead to embarrassment or humiliation [1]. The outcome of such preoccupation can be avoidance of social exposure, and if exposed, development of a spectrum of anxiety symptoms as well as physical distress, often manifested as unwarranted trembling, sweating, blushing, palpitations and biliousness [2]. Initially thought to be rare in the general population [3], this 'illness of lost opportunities' is being increasingly recognized as a 'hidden epidemic' [4]. In the USA, a community survey using a gold-standard interview reported by Schneier et al. [5] suggested a prevalence of 2%-3% among general population. In Australia, Lampe et al. [6] reported 1%–2.7%. In Brazil, Rocha et al.'s [7] community survey found a prevalence of 4.7–7.9% depending on the psychiatric nomenclature used. In Sweden, Furmark et al. [8] conducted a postal survey among nationally representative adults, suggested a very high prevalence of 15.6%. A few hospitals- and college-based studies conducted on the Arabian Gulf population suggest that SAD is common in this region [9, 10]. These tentative results suggest that wider community studies are warranted in the Arabian Gulf countries.

Various studies have examined the factors associated with SAD. In terms of gender, various studies have concluded that SAD may be more common in females (5.67%) than in males (4.20%) [11,12]. Studies among college students in Arabian Gulf countries have also endorsed this trend [13,14,15]. However, literature also yields a few studies which have reported the opposite trend [16,17].

In addition to gender, age is also associated with SAD, with likely onset during childhood or adolescence [18]. Rapee & Spence [19] have suggested that shyness in childhood is a strong determinant of social phobia in adulthood and that adult-onset SAD is rare. However, Cairney et al reported adult-onset SAD among their older subjects [20]. Even though the Arabian Gulf studies have reported that SAD tends to manifest during the formative years [21], these findings emerged from school-and-college-going populations. Studies are needed among the Arabian Gulf adult population to determine the onset and prevalence of SAD among all age groups.

An important characteristic of SAD is that it affects interpersonal relationships. Hart et al. [22] have suggested that "some individuals with social phobia manage to construct a lifestyle that allows them to avoid anxiety-provoking social interactions, but that also leads to loneliness and isolation" (p. 31). This is supported by the observation in western populations that people with SAD are more likely to be single [5]. As most studies in the Arabian Gulf have focused on pre-adults, the relation of marital status SAD remains unexplored. Addressing this issue would shed light on the socio-demographic factors associated with SAD.

In general, studies from both developed and emerging economies suggest higher prevalence of psychiatric disorders in urban areas which is often attributed to lower social cohesion in cities [23,24]. Intuitively, one would assume that those with SAD would fare worse in an urban setting. It is also possible that the traditional rural setup consisting of close-knit families with frequent interactions between neighbors might not be preferred by people with SAD. While ample studies are emerging worldwide throwing light into the urban-rural dichotomy among the psychiatric population [25], such studies are scant in the Arabian Gulf in the context of SAD.

Since the tendency to avoid anxiety-provoking social interactions is the hallmark of people with SAD, the condition can be presumed to impact their educational attainments as well. Some studies have suggested that there is pervasive academic underachievement among people with SAD. Heimberg, Stein, Hiripi & Kessler [26] have suggested that indices such as educational attainment depend on whether the SAD is characterized by 'exclusive *speaking fears*' or '*social-evaluative fears*'. However, due to insufficient research internationally, the relationship between SAD and educational attainments is still unclear, calling for more studies. Related to education is the issue of employment or labor-force participation. Some studies perceive SAD as a barrier to steady careers and labor-force participation compared to the general population [27]. People with SAD are also likely to endorse the view that their work is stressful and seek earlier retirement [28].

The aforementioned discussion has suggested that while social phobia has been reported in the Arabian Gulf population, the majority of them have been focused on hospital-based studies or children and adolescents and particularly those in education streams. There is a dearth of studies conducted on the general population.

This study aimed to take advantage of the emerging online research tools to explore the prevalence of SAD among adult Omanis and examine the association between social anxiety disorder and sociodemographic variables. Despite its limitations, the online survey can be fast and cost-effective in reaching a wider community. In addition to this, there is a heuristic value for the online survey since people with SAD are known to prefer social media instead of face to face communication [29].

Methodology:

Setting

The present online survey was conducted from October 2 to November 3, 2019, following the protocol followed elsewhere [30]. During this period there were approximately 3.3 million internet users (71% of the total population of 4.6 million in Oman). Oman's high middle-income status, youthful demography, high literacy level (>97%) [31,32], has resulted in the predominance of 'yuppies' in the population, who are users of online social media [30].

The majority of Oman's population lives in the long, narrow northern coastal region overlooking the Gulf of Oman. The capital city Muscat and its satellite towns are also located here. The rest of the population lives on/near Al Hajar and Qara Mountains adjacent to the 'Empty Quarter' or Rub Al Khali desert [33]. Oman has eleven administrative governorates (*muhafazah*). The targeted population was stratified according to the population for each administrative governorate. The inclusion criteria included Omani nationals > 18 years of age. An electronically signed, printable consent form was sent to the invitees specifying that they needed to give their consent before answering the questions in the study proforma.

Online survey

To reach all strata of the society, a video clip of the study and URL of the study proforma was distributed via popular social media platforms such as Twitter, WhatsApp, Instagram, and Facebook. All participants were informed that their participation would remain confidential and voluntary, that the collected data would be aggregated, and that they could withdraw from the study at any time.

A total of 2,393 people sent in their responses. Participants who had sent in incomplete data were excluded, leaving 1086 participants. Among them, 67 non-Omanis were excluded. The final number of participants whose responses were admitted into the study was $n = 1019$ (see Figure 1).

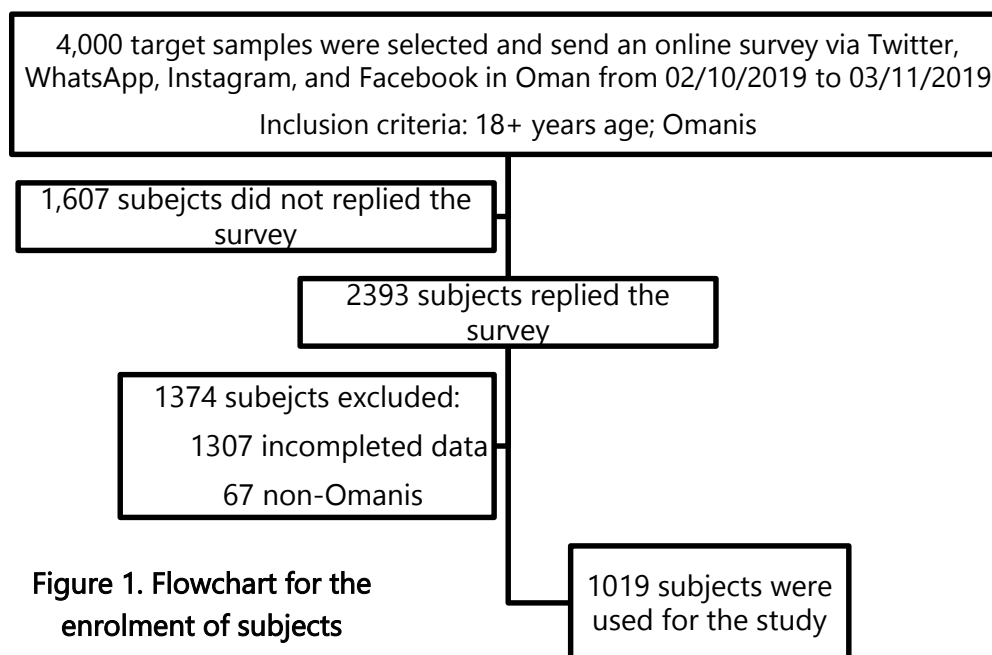


Figure 1. Flowchart for the enrolment of subjects

Outcome measures

Sociodemographic correlates

The first part of the study questionnaire sought socio-demographic information like gender, marital status, education level, labor-force participation, etc. Responses from the eleven administrative governorates Oman were categorized as either *urban* or *rural* to facilitate exploration of the urban-rural dichotomy aspect of the research question.

Quantification of SAD

To identify the presence of SAD, the Liebowitz Social Anxiety Scale (LSAS) was employed. LSAS has 24 items that focus on two aspects of SAD, namely social relationships and performance, on its Likert type questionnaire which gave options to respondents on a 0–3 scale ('none', 'mild', 'moderate', 'severe') [34]. LSAS has undergone extensive validation in various populations and linguist groups including in

the Arab world [35,36,37]. Its psychometric properties are adequate, including the presently used Arabic version, which has identified a cut-off of 55 to differentiate between the case and non-case [38].

Data analysis

Data was analyzed by Statistical Package for Social Sciences (SPSS) v. 23.0 and the results of those who were identified as having SAD (LSAS score ≥ 55) or were normal (LSAS ≤ 54) were analyzed using descriptive statistics. Univariate analysis was used, and demographic variables evaluated with the chi-square test and odds ratio to reveal the association between the social phobia and normal groups. Next, multiple logistic regression analyses were used, where social phobia status was the dependent variable, and those variables in the univariate analysis were the independent variables and concurrently adjusted by each other. This analysis could address the research aim to identify the contributing variables associated with social phobia.

Ethical approval

The study was approved by the Ethics Committee of the College of Medicine at Sultan Qaboos University Hospital (MREC#1749).

Results

A total of 1019 participants fulfilled the inclusion criteria. Table 1 shows the results for the subject's demographic variables and their association with the social phobia status. Out of 1019 participants, 45.9% (n=468) fulfilled the presence criteria for case-ness for SAD. There were more female participants (51.2%) than males (48.8%). The participants' average age was 29.9 (SD=8.4 years) years based on a range from 18 to 60 years. More than 71.0% (n=728) had university education, and 58.6% (n=597) of them were employed, 52.4% (n=534) were married, and 55.2% (n=562) were not living in an urban setting.

Table 2 shows univariate and multivariate (logistic regression) analysis for social phobia in association with demographics. Among the demographic variables, a significant association was found between social phobia status and gender (OR=1.401, p=0.008), age (OR=2.133, p<.001), educational level (OR=1.722, p=0.081), marital

status, and labor-force participation (OR=0.626, $p=0.22$) except for those living in the urban region (OR=1.229, $p=0.103$). The multivariate logistic analysis suggested that three demographic variables had significant association with SAD. The model shows that subjects who were of ages below 40 years were 1.6 times (OR=1.568, $p=0.026$) more likely to have SAD than subjects of 40 years and above. Female subjects were reported as 1.3 times (OR=1.348, $p=0.038$) more likely to have SAD than males. In education, subjects who have completed only secondary education and undergraduate education were 1.5 times (OR=1.45, $p=0.014$) and 2.5 times (OR=2.509, $p<.001$) respectively, more likely to be prone to SAD than those who had post-graduate education.

Discussion:

To our knowledge, this is the first study using a national representative sample of Omani adults to examine the prevalence of SAD using an online survey. The related aim has been to examine the factors which influence SAD. Previous studies in Oman have focused on these factors only in educational settings [15,38]. Using LSAS, Al-Hinai et al. [15] identified 37% of college students to meet the caseness of SAD. Among school-going pupils, using Composite International Diagnostic Interview [39], Al-Sharbati et al. [38] reported 36.6% of the sample as having SAD. In the other Arabian Gulf countries also, there was a SAD prevalence of 11.7% using LSAS [40] and 16.3% using the Social Phobia Inventory [41]. While such data are welcome, they do not cover the higher age groups, which is what the current study has attempted.

The present results revealed that nearly half the sample 45.9% ($n=468$) had social phobia, which is higher than the international rates reported from community surveys [5,6,7]. However, data for most such studies were derived from community surveys conducted using the gold-standard interview rather than a checklist such as LSAS. Other possible issues that account for divergent prevalence rates are variations in sample sizes, assessment tool employed, and the possible socio-cultural factors which have been previously endorsed to cause variations in the social-phobia-like repertoire of human behavior [42,43].

The second aim of this study is to establish the correlates of SAD. This study has examined sociodemographic variables such as gender, age, marital status,

educational attainment, urban-rural dichotomy, and labor-force participation. While using logistic regression, three variables emerged to be significantly associated with SAD, namely being ≤ 40 years old, female gender, and having attained less than postgraduate education. These socio-demographic variables are discussed below in tandem within the background literature.

Vast empirical studies are suggesting that temperament is known as behavioral inhibition system (BIS), colloquially known as 'shyness,' is often associated with SAD [44]. Such a temperament often appears in childhood and may persist into adulthood [18] and the entrance of the diathesis-stress model as postulated by Ingram & Luxton [45] may apply to the individuals who are likely to manifest SAD. When SAD is of adult-onset, Rapee & Spence [19] have reported it is likely to be associated with adverse life events and the resultant depression and episodic paroxysmal anxiety. In the present cohort, which was divided into two age groups (<40 vs > 40), SAD is strongly associated with the former. If SAD is mostly of childhood-onset, it remains to be seen whether age has the potential to mitigate the symptoms of SAD. This study was not equipped to address this issue. Longitudinal studies are needed to assess the durability of SAD.

Conceptually, if one tends to avoid interpersonal relationships and perceives unfamiliar social behavior as threatening, one would assume that such temperament would hamper one from academic excellence. However, evidence on the link between the pursuit of education and SAD has been generally mixed. Popular author Cain [46] has pointed out a tendency in Euro-American culture to underestimate the capabilities of introverts and the socially timid. In support of such a view, a longitudinal study among Finnish adolescents suggested that teens with SAD are likely to academically underperform their non-SAD peers [47]. Kessler [48], drawing from the United States National Comorbidity Survey, concluded that teens with SAD are less likely to make a smooth transition from school to higher education. While SAD is perceived as a culturally devalued temperament in the West, in non-western societies, an extraverted individual is more likely to be perceived as selfish and marked with the tendency to disrupt social modesty [38]. Within such a background, the question remains on the relationship between SAD and educational attainment in non-Western cultures such as Oman. Being an online survey, by definition, this study has likely been over-represented by people who are well-versed in social media and educated. Therefore,

it is not surprising that the majority of the participants, 53.5%, are undergraduates. In terms of the association between education and SAD, the present study suggests that secondary school and undergraduate education are strongly related to the presence of SAD. The question remains whether the temperament that is intimately related to SAD is a significant dampener in a young person's academic performance and later as an adult, in his integration into the labor-force. More studies are needed to clearly understand this vital issue so that remedial measures can be contemplated.

There are contradictory views on whether gender is strongly associated with SAD. Some studies have found SAD to be more common in females than males [11] and among the reasons postulated include hormonal differences [49]. On the other hand, a few studies have found SAD to be more common among males [11,12]. Earlier studies in Oman have added to this conflicting view. Among school-going pupils, Al-Sharbati et al. [38] have reported more female pupils to be affected than the male pupils. A similar trend also has been reported from the neighboring countries of Oman [13,14]. Among the college-going population in Oman, Al-Hinai et al. [15] found equal distribution in the endorsement of SAD for both genders. Among the clinical population, Chaleby and Raslan [50] have reported that more males are presenting with symptoms akin to SAD in their clinical practice in Saudi Arabia. Taking all this data into account, there is reason to believe that SAD is more common among women among those in the education stream but that the trend may change in clinical settings. This study, first of its kind in the Omani community also suggests that females are more likely to endorse themselves with the symptoms of SAD than their male counterparts.

Limitation:

Among factors that may hamper the generalizability of the present study, the following seem most important: First, this study constitutes an online survey. Online surveys are known to produce spurious results and therefore studies such as this as best followed up with traditional community surveys among the same region and demography. In relation to this, traditional surveys require a response rate exceeding 75% [51] of the required minimum sample size. In this study, as well as many online surveys in literature, the response rate was below 50% of the invitees. Consequently, the response rate did not correspond to the distribution of the population in Oman. This is likely to

hamper the generalization of this study. It is also likely that social media users might not have the patience to answer online surveys compared to personalized ones. The offer of incentives might be explored. Secondly, symptom checklists such as LSAS is likely to be inferior in detecting SAD compared to gold standard interviews. Future studies should address this important confounder in using a symptom checklist to detect the presence of psychiatric disorder. Thirdly, studies have previously suggested that SAD tends to be lower in non-western societies, and on the contrary, this study has found a higher prevalence compared to international trends. Studies are therefore needed to shed light on whether the presently found prevalence is not an artifact of the instrument used or something inherently in the way Omanis perceive the items of the LSAS. Finally, is also the possibility that social media might have a preponderance of people who prefer to be alone, which may have exaggerated the proportion of SAD endorsers in the sample [52].

Conclusion

This study found the prevalence of social phobia among a sample of Omani adults to be at 45.9%. This is much higher than that of international trends. The demographic variables that were positively associated with endorsement of SAD were female gender, younger age (<40 years), and lower-to-mid strata of education. This study would require replication using a more robust methodology than online survey alone. If the present finding withstands further scrutiny, then it is essential to mitigate such a high prevalence of SAD as this hidden epidemic may lead to chronic opportunity-costs and loss of productivity at individual and national levels.

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Table 1. Sociodemographic variables of participants (n =1019)			
	Total (n=1019)	Social Phobia	
		Yes (n=468) 45.9%	Normal (n=551) 54.1%
Demographic	n (%)	n (%)	n (%)
Gender			
Female	522 (51.2)	261 (55.8)	261 (47.4)
Male	497 (48.8)	207 (44.2)	290 (52.6)
Age (Years)			
18-39	860 (84.4)	419 (89.5)	441 (80.0)
40+	159 (15.6)	49 (10.5)	110 (20.0)
Marital Status			
Married	534 (52.4)	270 (57.7)	264 (47.9)
Not married, e.g. single, divorced, widow	485 (47.6)	198 (42.3)	287 (52.1)
Urban-rural dichotomy			
Rural	562 (55.2)	271 (57.9)	291 (52.8)
Urban	457 (44.8)	197 (42.1)	260 (47.2)
Educational level			
Secondary education	291 (28.6)	163 (34.1)	128 (23.2)
Undergraduate	545 (53.5)	251 (53.6)	294 (53.4)
Post graduate	183 (18.0)	54 (11.5)	129 (23.4)
Other, e.g., housewife, retired, unemployed	112 (11.0)	58 (12.4)	54 (9.8)
Labor-force participation			
Student	310 (30.4)	171 (36.5)	139 (25.2)
Employed (ref)	597 (58.6)	239 (51.1)	358 (65.0)

Table 2. Univariate and multivariate (logistic regression) analysis for social phobia in the association of demographic factors

Demographic		Social Phobia		Univariate analysis		Multivariate analysis [^]	
		Yes (n=468)	Normal (n=551)	OR	<i>p</i> -value	OR	<i>p</i> -value
		n (%)	n (%)				
Gender	Female	261 (55.8)	261 (47.4)	1.401	0.008*	1.348	0.038*
	Male (ref)	207 (44.2)	290 (52.6)				
Age (Years)	18-39	419 (89.5)	441 (80.0)	2.133	<.001**	1.568	0.026*
	40+ (ref)	49 (10.5)	110 (20.0)				
Marital Status	Married	270 (57.7)	264 (47.9)	1.482	0.002*	0.907	0.574
	Not married (ref)#	198 (42.3)	287 (52.1)				
Urban-rural dichotomy	Rural	271 (57.9)	291 (52.8)	1.229	0.103	1.099	0.483
	Urban (ref)	197 (42.1)	260 (47.2)				
Educational level	Secondary	163 (34.1)	128 (23.2)	3.042	<.001**	1.45	0.014*
	Undergraduate	251 (53.6)	294 (53.4)	2.039	<.001**	2.509	<.001**
	Other~	58 (12.4)	54 (9.8)	1.609	0.021*	0.97	0.895
	Post-graduate (ref)	54 (11.5)	129 (23.4)				
Labour-force participation	Students	171 (36.5)	139 (25.2)	1.843	<.001**	1.234	0.351
	Employed (ref)	239 (51.1)	358 (65.0)				

Ref, reference point; OR, Odds Ratio; *, sig., $p < 0.05$; **, sig., $p < .001$; Social Phobia, Liebowitz Social Anxiety Scale(LSAS): Yes: 55+, Normal: ≤ 54 ; Enter; Hosmer and Lemeshow Test, $\chi^2 = 6.506$, $p = 0.591$; Sensitivity=68.8%, Specificity=50.8%, overall predicting power=59.1%; #, included single, divorced, and widow; ~, included housewife, retired, unemployed

