

Social Anxiety Disorder and Its Correlates among Female Students at Taif University, Saudi Arabia

Azza Ali Taha^{1,2,*}, Etemad AA El-shereef^{2,3}, Taghreed Ismail Mohammed Abdullah⁴,
Rehab Ismail Mohammed Abdullah⁵, Wedad Abdullah Mutheeb Aldahasi⁴

¹Department of Family and Community Medicine, College of Medicine and Applied Medical Sciences, Taif University, Saudi Arabia

²Department of Public Health and Community Medicine, Faculty of Medicine, Menoufia University, Egypt

³Department of public Health and Community Medicine, Faculty of Medicine, Assiut University, Egypt

⁴Fifth Year Medical Student, Medical College, Taif University, Saudi Arabia

⁵Resident of family medicine in forced military hospital, Taif City, Saudi Arabia

*Corresponding author: azzaali55555@gmail.com

Abstract Background: Social anxiety disorder (SAD) is highly prevalent among adolescents but little is known about its prevalence in Saudi adolescents. **Objectives:** we aimed to determine the prevalence of SAD and investigate its associated correlates among Saudi adolescent females. **Methods:** A cross sectional study design was conducted at Taif university in the period from January to May 2016. A self-report pre-designed questionnaire was distributed to the students about personal factors and Social Phobia Inventory (SPIN) which is a reliable and valid psychometric tool of screening SAD. **Results:** Data of 957 female students were analyzed and rendered a prevalence of 16.3% for SAD among them. Most of the affected students had a moderate degree of the disorder in 43.5% of cases. Personal factors significantly associated with SAD in univariate analysis were obese weight perception ($p < 0.001$), having body deformities ($p = 0.004$), insufficient income ($p = 0.003$), 1st birth order ($p = 0.006$), parental conflict ($p = 0.003$), parental death ($p < 0.001$) and smoking ($p < 0.001$). **Conclusion and recommendations:** Our results show there is a high prevalence of SAD among female university students in Taif, Saudi Arabia. Independent personal factors associated with SAD in our study were smoking, parent death and obese weight perception. Based on the high prevalence encountered in our study, we recommend early detection and intervention to reduce the overall burden associated with this psychiatric disorder in the adolescent population as emphasized by the literature.

Keywords: adolescent, female, social phobia, social anxiety

Cite This Article: Azza Ali Taha, Etemad AA El-shereef, Taghreed Ismail Mohammed Abdullah, Rehab Ismail Mohammed Abdullah, and Wedad Abdullah Mutheeb Aldahasi, "Social Anxiety Disorder and Its Correlates among Female Students at Taif University, Saudi Arabia." *Research in Psychology and Behavioral Sciences*, vol. 5, no. 2 (2017): 50-56. doi: 10.12691/rpbs-5-2-3.

1. Introduction

Adolescence is a sensitive period characterized by not only dramatic hormonal and biological maturation but identity and social relations are established as well during this period [1].

Anxiety disorders are the most common mental disorders in adolescence with a global prevalence that ranges from 15% to over 30%. Furthermore, social anxiety disorder (SAD) is the commonest anxiety disorder in the adolescent population [2,3].

SAD individuals have intense marked fear of scrutiny or evaluation by others in situations which are performance-based or social e.g., having a conversation or public speaking in front of audience and being observed (e.g., eating or working). SAD sufferers fear of involuntarily saying or acting in a humiliating or embarrassing manner such as looking stupid, boring or anxious or having sweating, blushing or shaking. They will attempt to escape these fearing situations whenever

possible which is not always feasible, and they will have to endure the situation, but with intense distress feelings [4].

These defining symptoms of SAD were included in the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, (DSM-IV) which has been published by The American Psychiatric Association. Earlier, in DSM-I and -II it was grouped with all other phobias, but later in DSM-III, it was considered as independent diagnosis. However, up to this day some mental health providers still name SAD as social phobia [5].

SAD is characterized by chronicity and psychiatric comorbidity and is one of the most common disabling anxiety disorders [6]. It differs from performance anxiety and shyness by its greater severity. SAD places individuals in chronic distress and impairment [7] and is considered as the 5th most common disabling psychiatric disorder because it severely impairs all life domains [8]. The most frequent comorbidities associated with SAD are other anxiety disorders, mood (depression) and substance abuse disorders [9].

SAD individuals often avoid important activities like school and work, even if they managed to attend, they will

not participate. Accordingly, they have lower achievements in occupational, academic and family function, they will be at greater risk for drug and alcohol misuse and they will have less opportunity to marry and less quality of life. They are also at greater risk of committing suicide [10]. Moreover, a substantial economic burden is associated with SAD because sufferers are more likely to have reduced work productivity or increased absenteeism from work or be unemployed [7,11].

Unfortunately, it is under-recognized problem and there is a lack of awareness about it in the general population about it. So, most cases go untreated [7,11]; only about half of those with the disorder ever seek treatment, and even those who seek treatment, only do it after 15-20 years of symptoms [12].

Many models describe risk factors associated with SAD, these factors include genetic factors, parent-child interactions and adverse environmental factors together with societal and cultural influences [13].

Available data suggest that about 75% of the severe persistent forms of social anxiety have their age of onset in the mid-adolescence. It is recently thought that adolescence could be an optimal period for targeting risks of SAD through interventions because it is a period of flexibility and heightened learning [14]. In fact, a considerable number of persons who develop SAD in adolescence can recover before adulthood. However, if SAD persists into adulthood, the chance of spontaneous recovery is modest when it is compared with the other common mental disorders [15].

Information on SAD in Saudi adolescents is limited [16]. So, the current study was conducted to estimate the prevalence, severity, and risk factors associated with SAD in the Saudi adolescents.

2. Methods

A cross sectional study was conducted in the period from January to May 2016, among students from different specialties at female section of Taif university in Taif city which is located in the western region of Saudi Arabia. Students were asked to participate voluntarily in the study. Data were collected from 1000 students. However, missing data were seen in the records of 43 students in the 2nd part of the questionnaire diagnosing social phobia so their records were excluded and the final number of the analyzed questionnaires was 957.

Data was collected through a self-report Questionnaire distributed to students. The 1st part of the questionnaire included personal data of the participants which were accused of having relationship with social phobia (age, birth order, nationality, college specialty, academic year, weight perception, skin color, deformities, disabilities, income, living with or frequent visits to grandparents, mother and father age, education and jobs, presence of parental conflict or death, smoking and marital status).

Social Phobia Inventory (SPIN) developed by Connor and his colleagues was used to assess social phobia of the students in the 2nd part of the questionnaire. SPIN consists of 17-items scale and is rated from 0 (not at all) to 4 (extremely), the sum score ranges from 0 to 68. Social phobia is considered when the student has a sum score of

20 and above on SPIN, mild social phobia is considered when the total score ranges from 21-30, moderate from 31-40, severe from 41-50 while 51 or more is considered very severe form [17]. SPIN is a reliable and valid psychometric tool of screening social phobia in adolescents. It has a Cronbach alpha of 0.85, a sensitivity that ranges from 73-85% and a specificity ranging from 69-84% in diagnosing social phobia [18,19,20].

Ethical clearance was obtained from the ethical committee board at Taif university. Participants were informed about the objectives of the study prior to the data collection and verbal consent was obtained from them. Confidentiality of data was assured to the participants.

SPSS-20 version for Windows was used in analysis of the data. Numbers and percentages for individual responses of the students in the items of questionnaire evaluating SAD were calculated. Univariate analysis using chi squared test and spearman correlation coefficients was used to test association between SAD and the proposed risk factors. Multivariate analysis was performed by binary logistic regression to assess independent risk factors for SAD among students. Significance was set at 0.05 level.

3. Results

The median age of the participants was 21 ranging from 18 to 29 years. Forty hundred and forty-four (46.4%) of the students were in the 1st academic year. Figure 1 shows that 156 students (16.3%) had SAD. Figure 2 shows that most students suffering from SAD had a moderate degree in 43.5% of cases while very severe degree of SAD was observed in only 2.5%. Table 1 shows the distribution SPIN items among students. Some of the most common items were avoiding activities in which the person is in the center of attention (76.3%), fear of people in authority (71.8%), bothered by flushing in front of people (65.9%), avoiding going to parties (65.7%) and scared of criticism (63.6%).

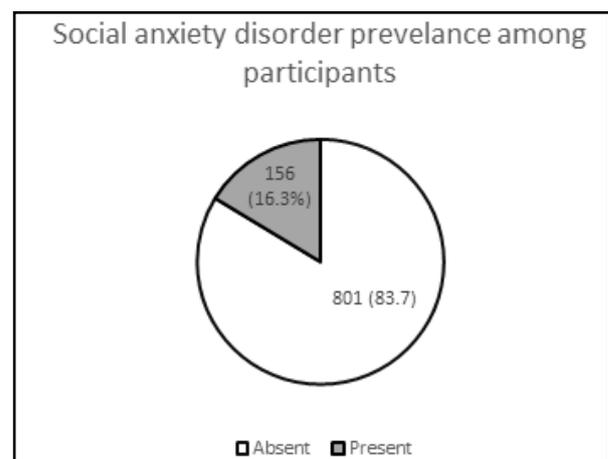


Figure 1. Prevalence of SAD among students

Table 2 shows individual factors associated with SAD. Significant factors were obese category of weight perception ($p < 0.001$), presence of deformities ($p = 0.004$) insufficient income ($p = 0.003$), 1st birth order ($p = 0.006$), presence of parental conflict ($p = 0.003$), parental death ($p < 0.001$) and smoking ($p < 0.001$).

Table 1. Distribution of SAD items among the studied students

| Items of SAD | Not at all | A little bit | Some what | Very much | extremely |
|---|------------|--------------|------------|------------|-----------|
| | No (%) | No (%) | No (%) | No (%) | No (%) |
| I am afraid of people in authority | 270 (28.2) | 441 (46.1) | 237 (24.8) | 3 (0.3) | 6 (0.6) |
| I am bothered by blushing in front of people | 326 (34.1) | 308 (32.2) | 128 (13.4) | 150 (15.7) | 45 (4.7) |
| Parties and social events scare me | 664 (69.4) | 206 (21.5) | 60 (6.3) | 7 (0.7) | 20 (2.1) |
| I avoid talking to people I don't know | 463 (48.4) | 346 (36.2) | 101 (10.6) | 25 (2.6) | 22 (2.3) |
| Being criticized scares me a lot | 348 (36.4) | 377 (39.4) | 163 (17) | 33 (3.4) | 36 (3.8) |
| Fear of embarrassment causes me to avoid doing things or speaking to people | 380 (39.7) | 313 (32.7) | 166 (17.3) | 49 (5.1) | 49 (5.1) |
| Sweating in front of people causes me distress | 401 (41.9) | 338 (35.3) | 116 (12.1) | 69 (7.2) | 33 (3.4) |
| I avoid going to parties | 328 (34.3) | 362 (37.8) | 139 (14.5) | 90 (9.4) | 38 (4) |
| I avoid activities in which I am the center of attention | 227 (23.7) | 449 (46.9) | 147 (15.4) | 86 (9) | 48 (5) |
| Talking to strangers scares me | 509 (53.2) | 279 (29.2) | 105 (11) | 36 (3.8) | 28 (2.9) |
| I avoid having to give speeches | 583 (60.9) | 234 (24.5) | 95 (9.9) | 20 (2.1) | 25 (2.6) |
| I would do anything to avoid being criticized | 696 (72.7) | 157 (16.4) | 71 (7.4) | 17 (1.8) | 16 (1.7) |
| Heart palpitations bother me when I am around people | 549 (57.4) | 239 (25) | 86 (9) | 57 (6) | 26 (2.7) |
| I am afraid of doing things when people might be watching | 507 (53) | 300 (31.3) | 95 (9.9) | 34 (3.6) | 21 (2.2) |
| Being embarrassed or looking stupid is among my worst fears | 350 (36.6) | 336 (35.1) | 168 (17.6) | 59 (6.2) | 44 (4.6) |
| I avoid speaking to anyone in authority | 448 (46.8) | 289 (30.2) | 134 (14) | 57 (6) | 29 (3) |
| Trembling or shaking in front of others is distressing to me | 552 (57.7) | 233 (24.3) | 87 (9.1) | 60 (6.3) | 25 (2.6) |

Table 2. Univariate analysis of the individual correlates for SAD

| Individual correlates | | SAD | | Chi square | P value |
|--|--------------------------------|------------|------------|------------|---------|
| | | Present | absent | | |
| | | No (%) | No (%) | | |
| Specialty | Theoretical | 48 (14.6) | 281 (85.4) | 3.4 | 0.186 |
| | Scientific | 51 (19.8) | 207 (80.2) | | |
| | Medical | 55 (15.1) | 309 (84.9) | | |
| Weight perception | Obese | 34 (28.1) | 87 (71.9) | 13.8 | <0.001 |
| | Non-obese | 122 (14.7) | 708 (85.3) | | |
| Skin Color | Light | 66 (17.2) | 318 (82.8) | 1.1 | 0.579 |
| | Moderate | 77 (15.3) | 425 (84.7) | | |
| | Dark | 13 (19.7) | 53 (80.3) | | |
| Deformities | Yes | 16 (30.8) | 36 (69.2) | 8.4 | 0.004 |
| | No | 139 (15.5) | 759 (84.5) | | |
| Disabilities | Yes | 1 (25) | 3 (75) | 0.24 | 0.622 |
| | No | 151 (15.9) | 796 (84.1) | | |
| Income | Insufficient | 6 (46.2) | 7 (53.8) | 8.6 | 0.003 |
| | Sufficient | 149 (15.9) | 788 (84.1) | | |
| Nationality | Non-Saudi | 7 (25.9) | 20 (74.1) | 1.8 | 0.174 |
| | Saudi | 149 (16.1) | 776 (83.9) | | |
| Birth order | The 1 st | 38 (23.8) | 122 (76.2) | 7.6 | 0.006 |
| | Other than the 1 st | 118 (14.9) | 674 (85.1) | | |
| Education of mother | Illiterate | 13(11.7) | 98 (88.3) | 1.9 | 0.160 |
| | Educated | 143 (17) | 700 (83) | | |
| Education of father | Illiterate | 14 (13.9) | 87 (86.1) | 0.53 | 0.468 |
| | Educated | 142 (16.7) | 709 (83.3) | | |
| Mother occupation | House wife | 90 (18) | 409 (82) | 2.4 | 0.124 |
| | Working outside | 65 (14.3) | 388 (85.7) | | |
| Father occupation | Not working | 5 (33.3) | 10 (66.7) | 3.2 | 0.073 |
| | working | 151 (16.1) | 787 (83.9) | | |
| Parent conflict | Present | 23 (28) | 59 (72) | 8.9 | 0.003 |
| | Absent | 133 (15.3) | 739 (84.7) | | |
| Parent death | Yes | 13 (48.1) | 14 (51.9) | 20.6 | <0.001 |
| | No | 143 (15.4) | 785 (84.6) | | |
| Grandparents living with the family or frequent visits | No | 38 (18.2) | 171 (81.8) | 0.74 | 0.391 |
| | Yes | 117 (15.7) | 628 (84.3) | | |
| Marital status | Married | 19 (16) | 100 (84) | 0.90 | 1 |
| | Unmarried | 137 (16.4) | 698 (83.6) | | |
| Smoking | Yes | 38 (39.2) | 59 (60.8) | 41 | <0.001 |
| | No | 118 (13.8) | 738 (86.2) | | |

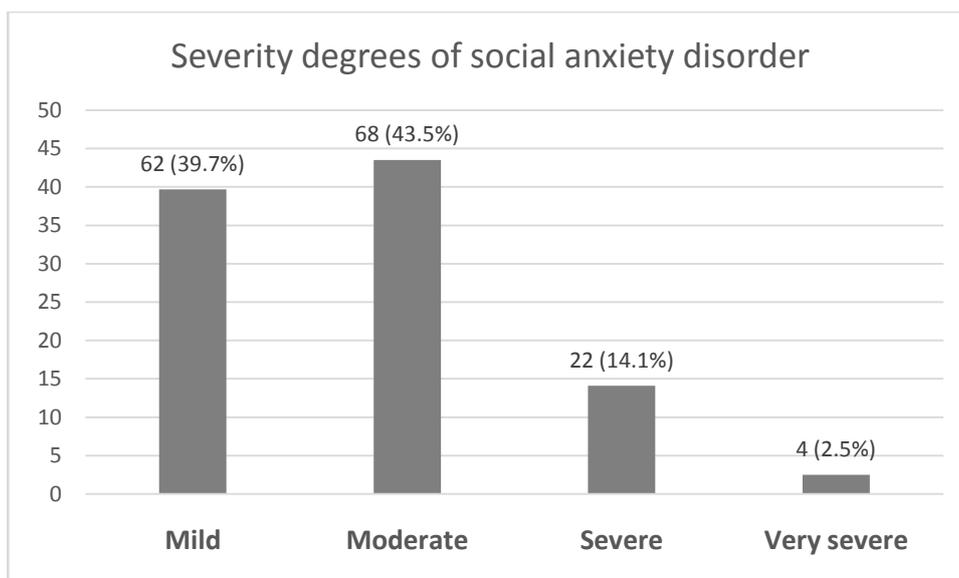


Figure 2. Severity degrees of SAD among students

Table 3. Correlation between SAD score and the numeric variables in the study

| SAD | Age | Educational year | Mother age | Father age |
|-----|-------|------------------|------------|------------|
| r | -0.04 | -0.02 | 0.03 | 0.02 |
| p | 0.162 | 0.520 | 0.321 | 0.411 |

Table 4. Binary logistic regression model for predicting SAD in students

| Predictor | B | Wald | p | OR (95% CI) |
|-------------------|-----|------|--------|-----------------|
| Weight perception | 0.7 | 9.3 | 0.002 | 2.1(1.3 – 3.3) |
| Income | 0.7 | 1.4 | 0.245 | 2.1 (0.6 – 7.3) |
| Deformities | 0.5 | 2.1 | 0.149 | 1.6 (0.8 – 3.3) |
| Smoking | 1.4 | 22.6 | <0.001 | 4.2 (2.3 – 7.5) |
| Parent conflict | 0.3 | 0.7 | 0.390 | 1.3 (0.7 – 2.7) |
| Birth order | 0.4 | 2.6 | 0.108 | 1.4 (0.9 – 2.2) |
| Parent death | 1.4 | 11.5 | 0.001 | 4.1 (1.8 – 9.3) |

^{OR}, odds ratio predicted by the model
^{CI}, confidence interval.

Table 3 shows there was no significant correlation between SAD and either of age, educational year, mother age or father age.

Table 4 shows that the only significant predictors to SAD among students by multivariate analysis were smoking, parent death and obese weight perception.

4. Discussion

Social anxiety disorder is a common psychiatric illness which has its onset around adolescent age [21].

Varying figures for prevalence of SAD have been reported by the literature. This variation can be attributed to the difference in tools used in assessment, the diagnostic threshold set, the overlap of symptoms with other disorders, the difficulty in separation from shyness or poor social skills and the difference in the studied population [22].

Epidemiological studies in adult non-clinical samples, revealed prevalence rates ranging from as low as 0.4% to

as high as 15.6 % [23]. In adolescents, even higher figures were reported; 17% among Polish adolescents [24], 24% in Pakistan [25], 20.9% among Turkish adolescents [26], 17.7% in Jordan [27] and 9.3% in Egypt [28]

In Saudi Arabia, a limited number of recent studies regarding the subject of social anxiety disorder in adolescents was found. AL-QAHTANI & SBFM, conducted a study in 2012 on secondary male students and found that 14% of them had SAD [29]. Another study was conducted in 2013 on secondary school boys which found that 11.7% of the students had SAD [16]. A very high prevalence; 34% was reported by Alkhatami in 2014 who conducted his study on elementary and secondary school boys and girls [30]. In our study, 16.3% of the students had social anxiety disorder (Figure 1) which is comparable to the previously mentioned studies.

Some of the most common items of SPIN in our study were avoiding activities in which the person is in the center of attention (76.3%), fear of people in authority (71.8%), bothered by flushing in front of people (65.9%), avoiding going to parties (65.7%) and scared of criticism

(63.6%) (Table 1). Our results agree with findings of an Iraqi study held among university students where avoiding activities in which the person is in the center of attention, being bothered by flushing in front of people, avoiding going to parties and being scared of criticism were among the common items encountered in 75.7%, 74%, 63.5% and 79.4% respectively [31].

Individual factors significantly associated with SAD in our study were perceived obesity ($p < 0.001$), presence of deformities ($p = 0.004$), insufficient income ($p = 0.003$), 1st birth order ($p = 0.006$), presence of parental conflict ($p = 0.003$), parental death ($p < 0.001$) and smoking ($p < 0.001$) as shown in univariate analysis in Table 2. However, the only significant predictors to SAD among students by multivariate analysis were smoking, parent death and obese weight perception (Table 4).

Dissatisfaction with weight was associated with social anxiety in many studies [32,33]. Agreeing with our results, Bagchi stated that obesity is associated with greater prevalence of anxiety disorders specially social phobias [34]. Another recent study suggested a positive association between sedentary behaviors which are contributing factors to obesity and anxiety disorder [35]. However, Anderson et al in 2017 stated that obesity is associated with anxiety disorders in females not males [36]. Inversely, Lee and Yen, in their study on Taiwanese adolescents reported there is no association between obesity and social phobia [37].

For assessing the relationship between deformities and SAD in our study, we used a single direct question to ask about presence or absence of any body deformities among participants. We didn't use the body dysmorphic disorder questionnaire which is derived from the DSM-IV. That questionnaire asks respondents if their appearance concerns are sources of preoccupation and, if so, it determines the degree of associated stress and interference with social or occupational functioning of the individuals [38]. Body dysmorphic disorder (BDD) is characterized by excessive thoughts about an existing slight or even imagined defect in the appearance and it arises from a fear of negative evaluation by other people; the core feature of SAD [39].

A recent study indicates an existing link between body dysmorphic disorder (BDD) and SAD [40]. Previous studies also report a SAD prevalence of 12 – 69% among individuals suffering from BDD and a BDD prevalence of 5 – 12% among those with SAD [41,42]. These reports are agreeable with our significant findings (p value = 0.004) about the relationship between SAD and presence of deformities.

Poverty is linked to many adverse mental health conditions in adolescents either directly through its effects on adolescents or indirectly through stimulating parental stress which leads to parent–adolescent conflict and negative parenting practices [43]. Various adult and children studies showed significant associations between mental disorders and low socioeconomic status [44]. Moreover, a systematic review conducted on 115 epidemiological studies in middle and low income countries investigated the association between common mental disorders and poverty and reported that more than 70% of these studies found a positive association between common mental disorders and poverty [45]. So, a consensus exists now in

the literature about high rates of anxiety disorders in those with a socio economic disadvantage [46]. The association between low socio-economic status (SES) and SAD which is consistent with our findings was explained by the strong impact of extreme poverty on the social functioning. This association is strongly seen in developing countries and in nations with extreme deprivation [5].

The family structure and the position of the child in that family have a significant impact on how the children develop and perceive the world (Adler, A., Liebenau, G., & Stein, H., 2005). Studies regard first-born children as more conscientious, dominant, responsible, ambitious, more neurotic and anxious about their status whereas later-born children emerge as being more agreeable, tender-minded, accommodating, altruistic, open to experience, nonconforming and unconventional, fun-loving and sociable [47]. Consistent with our result is a study done by Pearson in 2009 to explore relation between anxiety and birth order where they found that first-born children have higher levels of physiological and social anxiety compared to later-born children [48]. Inversely, Elalky et al. reported no association between birth order and both anxiety and depressive symptoms [1].

Grover et al (2005) found that children who had loss experiences in the form of death, separation, academic failure and negative family environment had a greater degree of anxiety [49]. Several other studies have found that parent separation and divorce can impact children's adjustment over time and that internalizing problems can develop in children with early parent divorce whereas later parent divorce is associated with poorer grades in school [50,51,52]. Another study investigated the relationship between marital quality and family adaptability and cohesion, and child social anxiety. The findings suggest that rigid families or marital discord (low quality marriages) are probable risk factors for high levels of social anxiety in children [53]. A more specific study done by Bandelow et al in 2004 reported similar findings to our study regarding parental separation. This study linked SAD with parental separation, parental marital discord, sexual abuse, familial violence, and childhood illness. All these adverse events were correlated with high rates of SAD but parental separation had the highest correlation in that study [54].

Harmful behaviors such as drinking, drug use and smoking generally start in adolescence. This early start predicts later abuse and dependence. So, it is very important to study facilitating and impeding factors for the beginning of these behaviors during this critical period of life. One of the factors linked to smoking in adolescence is social anxiety [55]. Studies report that SAD individuals have higher rates of drinking, smoking, and drug use than non-SAD individuals [56,57,58]. Moreover, a recent study in high school students reported association between social anxiety and positive attitudes towards cigarette smoking [59].

Moylan et al described 3 different models that can explain the association between smoking and anxiety, the first model suggests that smoking increases anxiety, the second one suggests that anxiety increases smoking and the third one suggests that smoking and anxiety rates are affected by shared risk factors [60].

Several studies report that individuals with high anxiety are more likely to smoke [58,61,62,63]. Many factors were accused in this association such as the use of cigarettes as a self-treatment to reduce anxiety and the increased effect of peer pressure in those suffering from anxiety [64,65]. Moreover, many studies suggest that smoking increases the risk of developing high anxiety [62,66,67], 66, 67] this link may be due to the effects of smoking on neurotransmitters, neurobiology, respiratory health and autonomic control [68] and due to the impact on normal neurodevelopment [69]. Finally, many shared risk factors have been identified that can increase the probability of both smoking and anxiety such as low socio economic status [70,71,73].

It is noteworthy that our research has some limitations. Some risk factors which have been associated with SAD in literature such as sexual, emotional and physical abuse [74] and family violence [33] haven't been investigated in our study. We didn't approach these areas because of the high sensitivity of these issues to be discussed in the studied population.

5. Conclusions

Our study showed there is a high prevalence (16.3%) of SAD among Taif female university students. Most of them had a moderate degree of the disorder. Personal factors which were significantly associated with SAD in univariate analysis were obese weight perception ($p < 0.001$), presence of body deformities ($p = 0.004$), insufficient income ($p = 0.003$), 1st birth order ($p = 0.006$), parental conflict ($p = 0.003$), parental death ($p < 0.001$) and smoking ($p < 0.001$). Our results call for early detection and intervention to reduce the overall burden associated with this psychiatric disorder in the adolescent population.

References

- [1] Elalky, M.I., et al., The Effect of Birth Order and Socio Demographic Characteristics on Anxiety and Depression among Adolescents. *International Journal of Nursing Science*, 2015. 5(3): p. 110-121.
- [2] Tassin, C., et al., Anxiety disorders in adolescence. *Psychiatria Danubina*, 2014. 26(1): p. 27-30.
- [3] Burstein, M., et al., Social phobia and subtypes in the National Comorbidity Survey-Adolescent Supplement: prevalence, correlates, and comorbidity. *Journal of the American Academy of Child & Adolescent Psychiatry*, 2011. 50(9): p. 870-880.
- [4] Association, A.P., *Diagnostic and statistical manual of mental disorders (DSM-5®)*. 2013: American Psychiatric Pub.
- [5] Brook, C.A. and L.A. Schmidt, Social anxiety disorder: a review of environmental risk factors. *Neuropsychiatric disease and treatment*, 2008. 4(1A): p. 123.
- [6] Doehrmann, O., et al., Predicting treatment response in social anxiety disorder from functional magnetic resonance imaging. *JAMA psychiatry*, 2013. 70(1): p. 87-97.
- [7] Schneier, F.R., Social anxiety disorder. *New England Journal of Medicine*, 2006. 355(10): p. 1029-1036.
- [8] Jazaieri, H., et al., The role of emotion and emotion regulation in social anxiety disorder. *Current psychiatry reports*, 2015. 17(1): p. 1-9.
- [9] Fehm, L. and H.-U. Wittchen, Comorbidity in social anxiety disorder. *MEDICAL PSYCHIATRY*, 2004. 29: p. 49-64.
- [10] Baldwin, D.S. and C. Buis, Burden of social anxiety disorder. *MEDICAL PSYCHIATRY*, 2004. 29: p. 65-74.
- [11] Furmark, T., Social phobia: overview of community surveys. *Acta Psychiatrica Scandinavica*, 2002. 105(2): p. 84-93.
- [12] Tyrer, P. and K.R. Silk, *Cambridge textbook of effective treatments in psychiatry*. 2008: Cambridge University Press.
- [13] Muris, P., The pathogenesis of childhood anxiety disorders: Considerations from a developmental psychopathology perspective. *International Journal of Behavioral Development*, 2006. 30(1): p. 5-11.
- [14] Haller, S.P., et al., Social anxiety disorder in adolescence: How developmental cognitive neuroscience findings may shape understanding and interventions for psychopathology. *Developmental cognitive neuroscience*, 2015. 13: p. 11-20.
- [15] Health, N.C.C.f.M. *Social anxiety disorder: recognition, assessment and treatment*. 2013. British Psychological Society.
- [16] Ghazwani, J.Y., S.N. Khalil, and R.A. Ahmed, Social anxiety disorder in Saudi adolescent boys: Prevalence, subtypes, and parenting style as a risk factor. *Journal of family & community medicine*, 2016. 23(1): p. 25.
- [17] Connor, K.M., et al., Psychometric properties of the social phobia inventory (SPIN). *The British Journal of Psychiatry*, 2000. 176(4): p. 379-386.
- [18] Harikrishnan, U., A. Arif, and H. Sobhana, *Prevalence of Social Phobia among School Going Adolescents*. 2016.
- [19] Antony, M.M., et al., Psychometric properties of the social phobia inventory: Further evaluation. *Behaviour research and therapy*, 2006. 44(8): p. 1177-1185.
- [20] Ranta, K., et al., Screening social phobia in adolescents from general population: The validity of the Social Phobia Inventory (SPIN) against a clinical interview. *European Psychiatry*, 2007. 22(4): p. 244-251.
- [21] Beesdo, K., S. Knappe, and D.S. Pine, Anxiety and anxiety disorders in children and adolescents: developmental issues and implications for DSM-V. *Psychiatric Clinics of North America*, 2009. 32(3): p. 483-524.
- [22] Shah, P. and L. Kataria, Social phobia and its impact in Indian university students. *The Internet Journal of Mental Health*, 2010. 6(2).
- [23] Furmark, T., Social phobia. From epidemiology to brain function. 2000, Acta Universitatis Upsaliensis.
- [24] Rabe-Jabłońska, J., A. Dietrich-Muszalska, and A. Gmitrowicz, The prevalence of social phobia in representative group of adolescents from Lodz. *Psychiatria polska*, 2002. 37(1): p. 87-95.
- [25] Farooq, S.A., et al., Quality of Life Perceptions in School-Going Adolescents with Social Anxiety. *Journal of Childhood & Developmental Disorders*, 2017.
- [26] GÜLTEKİN, B.K. and I.F. Dereboy, The prevalence of social phobia, and its impact on quality of life, academic achievement, and identity formation in university students. *Türk Psikiyatri Dergisi*, 2011. 22(3): p. 150.
- [27] Momani, F.A. and A.-K.M. Jaradat, Social Phobia among University Students: Prevalence and Socio-Demographic Factors. *Jordan Journal of Social Sciences*, 2011. 4(1).
- [28] Afifi, D.Y., Social anxiety among Egyptian University students. 2012, Cairo University.
- [29] AL-QAHTANI, A. and A. SBFM, Prevalence and risk factors of social phobia among secondary school male students in Khamis Mushayt, Kingdom of Saudi Arabia. *Medical Journal of Cairo University*, 2012. 8(1): p. 871-876.
- [30] Alkhatami, S., Social anxiety and quality of life in adolescents: cognitive aspect, social interaction and cultural tendency. 2014.
- [31] Kareem, S.K.A.M.S. and D.A. Al-Banna, Assessment of Social Phobia among Students of Nursing College in Hawler Medical University at Erbil City-Iraq. *Kufa Journal for Nursing Sciences* 2016. 6(2).
- [32] Mehtalia, K. and G. Vankar, Social anxiety in adolescents. *Indian journal of psychiatry*, 2004. 46(3): p. 221.
- [33] Upadhyaya, S.K., et al., Risk factors of social anxiety in medical college students. *Journal of Health Specialties*, 2016. 4(3): p. 207.
- [34] Bagchi, D., *Global perspectives on childhood obesity: current status, consequences and prevention*. 2010: Academic Press.
- [35] Teychenne, M., S.A. Costigan, and K. Parker, The association between sedentary behaviour and risk of anxiety: a systematic review. *BMC public health*, 2015. 15(1): p. 513.
- [36] Anderson, S.E., et al., Adolescent obesity and risk for subsequent major depressive disorder and anxiety disorder: prospective evidence. *Psychosomatic Medicine*, 2007. 69(8): p. 740-747.

- [37] Lee, J.-I. and C.-F. Yen, Associations between body weight and depression, social phobia, insomnia, and self-esteem among Taiwanese adolescents. *The Kaohsiung journal of medical sciences*, 2014. 30(12): p. 625-630.
- [38] Phillips, K.A., *Understanding body dysmorphic disorder*. 2009: Oxford University Press.
- [39] Phillips, K.A., et al., Psychosocial functioning and quality of life in body dysmorphic disorder. *Comprehensive psychiatry*, 2005. 46(4): p. 254-260.
- [40] Fang, A. and S.G. Hofmann, Relationship between social anxiety disorder and body dysmorphic disorder. *Clinical psychology review*, 2010. 30(8): p. 1040-1048.
- [41] Coles, M.E., et al., Body dysmorphic disorder and social phobia: cross-sectional and prospective data. *Depression and anxiety*, 2006. 23(1): p. 26-33.
- [42] Menezes, G.B.d., L.F. Fontenelle, and M. Versiani, Early-onset social anxiety disorder in adults: clinical and therapeutic features. *Revista Brasileira de Psiquiatria*, 2005. 27(1): p. 32-36.
- [43] Dashiff, C., et al., Poverty and adolescent mental health. *Journal of Child and Adolescent Psychiatric Nursing*, 2009. 22(1): p. 23-32.
- [44] McLaughlin, K.A., et al., Socioeconomic status and adolescent mental disorders. *American journal of public health*, 2012. 102(9): p. 1742-1750.
- [45] Lund, C., et al., Poverty and common mental disorders in low and middle income countries: A systematic review. *Social science & medicine*, 2010. 71(3): p. 517-528.
- [46] Merikangas, K.R., Vulnerability factors for anxiety disorders in children and adolescents. *Child and Adolescent Psychiatric Clinics of North America*, 2005. 14(4): p. 649-679.
- [47] Sulloway, F.J., Birth order and sibling competition. *Handbook of evolutionary psychology*, 2007: p. 297-311.
- [48] Pearson, T.R., Anxiety and birth order: does birth order play a role in a child's anxiety level? 2009.
- [49] Grover, R.L., G.S. Ginsburg, and N. Ialongo, Childhood predictors of anxiety symptoms: A longitudinal study. *Child Psychiatry & Human Development*, 2005. 36(2): p. 133-153.
- [50] Lansford, J.E., et al., Trajectories of internalizing, externalizing, and grades for children who have and have not experienced their parents' divorce or separation. *Journal of family Psychology*, 2006. 20(2): p. 292.
- [51] Spence, S.H., et al., Maternal anxiety and depression, poverty and marital relationship factors during early childhood as predictors of anxiety and depressive symptoms in adolescence. *Journal of Child Psychology and Psychiatry*, 2002. 43(4): p. 457-469.
- [52] Wood, J.J., R.L. Repetti, and S.C. Roesch, Divorce and children's adjustment problems at home and school: The role of depressive/withdrawn parenting. *Child Psychiatry and Human Development*, 2004. 35(2): p. 121-142.
- [53] Peleg-Popko, O. and R. Dar, Marital quality, family patterns, and children's fears and social anxiety. *Contemporary Family Therapy*, 2001. 23(4): p. 465-487.
- [54] Bandelow, B., et al., Early traumatic life events, parental rearing styles, family history of mental disorders, and birth risk factors in patients with social anxiety disorder. *European archives of psychiatry and clinical neuroscience*, 2004. 254(6): p. 397-405.
- [55] Blöte, A.W., A.C. Miers, and P.M. Westenberg, Adolescent Social Anxiety and Substance Use: The Role of Susceptibility to Peer Pressure. *Child Development Research*, 2016. 2016.
- [56] Merikangas, K.R., et al., The spectrum of social phobia in the Zurich cohort study of young adults. *Biological Psychiatry*, 2002. 51(1): p. 81-91.
- [57] Marmorstein, N.R., et al., Anxiety as a predictor of age at first use of substances and progression to substance use problems among boys. *Journal of abnormal child psychology*, 2010. 38(2): p. 211-224.
- [58] Sonntag, H., et al., Are social fears and DSM-IV social anxiety disorder associated with smoking and nicotine dependence in adolescents and young adults? *European Psychiatry*, 2000. 15(1): p. 67-74.
- [59] Abdollahi, A., et al., Social anxiety and cigarette smoking in adolescents: The mediating role of emotional intelligence. *School Mental Health*, 2015. 7(3): p. 184-192.
- [60] Moylan, S., et al., Cigarette smoking, nicotine dependence and anxiety disorders: a systematic review of population-based, epidemiological studies. *BMC medicine*, 2012. 10(1): p. 123.
- [61] Goodwin, R.D., P.M. Lewinsohn, and J.R. Seeley, Cigarette smoking and panic attacks among young adults in the community: the role of parental smoking and anxiety disorders. *Biological psychiatry*, 2005. 58(9): p. 686-693.
- [62] Cuijpers, P., et al., Smoking is associated with first-ever incidence of mental disorders: a prospective population-based study. *Addiction*, 2007. 102(8): p. 1303-1309.
- [63] Swendsen, J., et al., Mental disorders as risk factors for substance use, abuse and dependence: results from the 10-year follow-up of the National Comorbidity Survey. *Addiction*, 2010. 105(6): p. 1117-1128.
- [64] Ham, L.S. and D.A. Hope, Incorporating social anxiety into a model of college student problematic drinking. *Addictive behaviors*, 2005. 30(1): p. 127-150.
- [65] Tjora, T., et al., Distal and proximal family predictors of adolescents' smoking initiation and development: a longitudinal latent curve model analysis. *BMC public health*, 2011. 11(1): p. 911.
- [66] Isensee, B., et al., Smoking increases the risk of panic: findings from a prospective community study. *Archives of General Psychiatry*, 2003. 60(7): p. 692-700.
- [67] Pedersen, W. and T. Von Soest, Smoking, nicotine dependence and mental health among young adults: a 13-year population-based longitudinal study. *Addiction*, 2009. 104(1): p. 129-137.
- [68] Preter, M. and D.F. Klein, Panic, suffocation false alarms, separation anxiety and endogenous opioids. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 2008. 32(3): p. 603-612.
- [69] Iniguez, S.D., et al., Nicotine exposure during adolescence induces a depression-like state in adulthood. *Neuropsychopharmacology*, 2009. 34(6): p. 1609-1624.
- [70] Reichborn-Kjennerud, T., et al., Genetic and environmental influences on the association between smoking and panic attacks in females: a population-based twin study. *Psychological medicine*, 2004. 34(7): p. 1271-1277.
- [71] Hettema, J.M., et al., The structure of genetic and environmental risk factors for anxiety disorders in men and women. *Archives of general psychiatry*, 2005. 62(2): p. 182-189.
- [72] Schaap, M. and A. Kunst, Monitoring of socio-economic inequalities in smoking: learning from the experiences of recent scientific studies. *Public health*, 2009. 123(2): p. 103-109.
- [73] Kessler, R.C., et al., Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of general psychiatry*, 2005. 62(6): p. 617-627.
- [74] Raposo, S.M., et al., Time does not heal all wounds: older adults who experienced childhood adversities have higher odds of mood, anxiety, and personality disorders. *The American Journal of Geriatric Psychiatry*, 2014. 22(11): p. 1241-1250.