International Journal of Community Medicine and Public Health
Babu P et al. Int J Community Med Public Health. 2023 Aug;10(8):2831-2838
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20232373

Original Research Article

Social anxiety among trainee audiologist and speech language pathologist in Bengaluru: a cross sectional study

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Received: 15 May 2023
Revised: 04 July 2023
Accepted: 05 July 2023

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ABSTRACT

Background: Audiologist and Speech language pathologist (ASLPs) are a group of professionals specialized in communication disorders. Their work responsibilities require them to be interacting with people with different backgrounds, education and ages who seek assistance from these young professionals. It is important to know whether the professionals who are meant to deal with individuals with communication disorders are themselves going through social anxiety or not.
Methods: A questionnaire was prepared and was used for assessing social anxiety among trainee undergraduate and postgraduate ASLP's. Data was collected via Google form further was analyzed using SPSS version 20.0.
Results: Total 124 students participated in the study (20 males and 104 females). Cronbach's test was administered to check the internal consistency of questionnaire. The overall questionnaire had a global alpha of 0.926 and global alphas for different scenarios of the questionnaire were 0.865 and 0.894 respectively indicating high internal consistency. The test retest stability for the total score found to be high with r =0.773and p<0.01. Social anxiety score differs significantly with respect to 'Traumatic life events' and 'Age'.
Conclusions: The study was able to deliver the answers to the questions of the researcher, that is, first, the study was able to assert the use of the questionnaire in the target population. Second, study found a statistically significant difference on anxiety scores between different scenarios i.e, social and professional life.

Keywords: Audiologist and speech language pathologist, Medical students, SAD, Social anxiety

INTRODUCTION

Social anxiety generally refers to an overwhelming fear on social situations. Having social anxiety among people maybe very prevalent and specific to certain situations, however this can turn into a serious mental health disorder such as social anxiety disorder (SAD). According to the report of World Health Organization, 1 in every 8 people is living with mental disorder. A 301 million were reported to have anxiety disorder by 2019's latest report which includes 58 million children and adolescents. Several studies indicate that young individuals mostly who belongs to the age category of 18-24 are experiencing social anxiety more.[1] If social anxiety is the overwhelming fear in social situations, then social anxiety disorder (SAD) is the long-term overwhelming fear in social situations

Implying social anxiety as shyness is misleading. In reality, it's a constant fear that haunts and affects daily life activities of a person. Some of the physical symptoms include; fast heartbeat, panic attacks, trembling, sweating, upset stomach, trouble in catching the breath, dizziness, muscle tension etc. And mostly the people with anxiety issues would try to avoid common social situations like;

Interacting with unfamiliar people, attending parties or gatherings, initiating conversations, making eye contact, dating, eating in front of others, going to a restaurant alone etc. They often worries about getting negatively evaluated and criticized by others, being the center of attention and avoid doing activities or speaking to people out of fear of embarrassment. Above all, they find it very difficult to communicate with others.[2]

SAD has been studied in depth by several investigators in the past who showed the risk factors associated with social anxiety includes physical or mental abuses, Childhood traumas, Rejections, Bullying, Humiliation, Family conflicts etc.[3] Bandelow et al conducted a study on the risk factors (early traumatic life events) associated with social anxiety disorder and the effect of these risk factors on social anxiety was compared between control and patient group.[4] Their study revealed higher rates of separations from parents, marital problems, violence and sexual abuse in the families of social anxiety disorder patients. The study also reported that the early traumatic life events (separation from mother during childhood, separation from father during childhood, separation from both parents during childhood, Parents' marital problems, separation, or divorce, childhood illness, violence in the family and sexual abuse) had a significant difference between the patients and controls. And the effect of risk factors is also found to be high in-patient group compared to the control group.

The unnoticeable characteristics of social anxiety make it often difficult for others to volunteer help to the troubled individual or offer direction to seek professional help. The complications of this disorder includes low self-esteem, sensitivity towards criticism, poor social skills, difficulty in having social relationships, desire to isolate from others, negativity about oneself, failing to have achievements in academic or in work, desire to get addicted to drugs and in extreme cases, tendency to attempt suicide and so on.

Some of the contributing factors for the perceived social anxiety in professionals are attributed to work related stress, working environment, nature of colleagues, criticism by supervisors etc. Social anxiety symptoms in medical students may influence their undergraduate and graduate clinical training, decrease their academic performance, affect their choice of future specialties, and may lead to other psychiatric co-morbidities such as depression and substance abuse especially alcohol abuse. Undergraduate and graduates medical training involves clinical and coursework. Any students with social anxiety symptoms may find clinical training difficult and this may lead to additional stress and anxiety. This may further decrease academic performance. There is also evidence to suggest that stress during undergraduate training may result in psychological or emotional impairment during professional life and therefore affect the quality of patient care.[5] As one of the effects of social anxiety is the breakdown in social interactions, students with social anxiety disorder may work environment which are less stressful and has little involvement. However, a study looking into whether social anxiety disorder influences future career choices of medical students reported that there was no significant association among high stress, social phobia, and choice of least specialties listed in them.[6] This study shows that inclusion stress level in clinics adds to the anxiety issue in personal life among medical students. Given the high prevalence of social anxiety symptoms, more studies ought to be conducted to identify other factors that could play a role in the development of the disorder. This in turn would allow us to carry out a longitudinal study looking at the outcomes and possible interventions.

Audiologist and Speech language pathologist (ASLPs) are a group of professionals specialized in communication disorders. Their work responsibilities require them to be interacting with people with different backgrounds, education and ages, all of them who seek assistance from these young professionals. Budding Audiologist and Speech language pathologist carry a lot of responsibilities on their shoulders. e.g. carrier challenges in the form of meeting requirement in academic level as well as in the clinical level, challenges in personal life etc. All of these can contribute to them developing social anxiety of exacerbate social anxiety that they already may have.

It is important to know whether the professionals who are meant to deal with individuals with communication disorders are themselves going through social anxiety. Therefore, the present study was planned to know whether trainee ASLPs have any such issues that can affect their clinical training now and work performance in future.

Aim of the study were to compare social anxiety among student audiologist and speech language pathologist across their social and professional life and to check the reliability of the questionnaire that have used for the assessment purpose.

METHODS

Participants were the Bachelor's and Master's students of Audiology and Speech language pathology from Bengaluru. The study was carried out in a time period of 3 months, from December 2022 till March 2023.

Tool used

A questionnaire which was content validated by three professionals from the field of speech and hearing who had experience in both clinical work and teaching the trainees, using a 4-point rating scale was used for assessing social anxiety among the participants.

1 = item is not relevant to the construct to be measured.
2 = item is somewhat relevant to the construct to be measured.

3 = item is quite relevant to the construct to be measured.
4 = item is highly relevant to the construct to be measured.

Those items (questions) which received the rating 3 or 4 were selected and those items with rating less than 3 were excluded from the questionnaire. Further, based on the comments received from the valuators, the questions were rephrased and re- administered of rating by experts was completed. The final questionnaire was a 5-point rating scale ranging from 'Never' to 'Always' and had 18 items in total with two subsections; social and clinical. In Social situation section 10 questions were addressed and in clinical section 8 questions were asked. A trial was carried out prior to the data collection and the time taken to fill the questionnaire was less than 5 minutes.

The validated questionnaire was sent to under and post graduates students of the Audiology and Speech Language pathology via Google form for the purpose of data collection. The google form also included a section on demographic information such as age, gender of the respondent, current year of study. Second section included a consent form and participant information sheet which explained the purpose of the study, storage of data, maintaining the confidentiality and anonymity of the respondents and use of data for publication with disclosing any identifiable or personal information about the respondent.

Convenient and purposive sampling procedures were followed for the data collection. The collected information was saved in an excel sheet and later it was imported to the software SPSS version 20.0 to perform statistical analysis.

Exclusion criteria of the study were unwillingness to provide the information for research purpose, a score of "no anxiety" or missing data and more than 3 missing values on the questionnaire.

Sample size calculation

The study was planned to be conducted in Bengaluru, India. And the sample size was calculated using the following formula:

$$n = \frac{z^2 * p * (1-p)}{e^2}$$

'n' represents the required number of participants for the study, Z is the test statistic score, 'P' is the population proportion which is assumed to be 50%, 'e' is the sampling error (10%).

The minimum sample size required for the study as per the calculation is 96, at 5% level of significance with 95% level of confidence interval.

Process of study

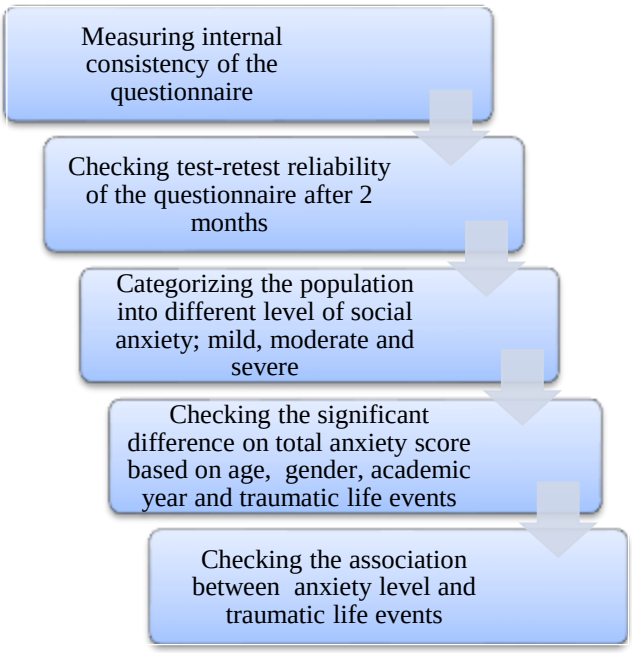

Figure 1: Process of study.

Statistical analysis

The statistical analysis was carried out using SPSS version 20. Since the data was qualitative in nature, the obtained data was converted to numerical data prior to the statistical analysis. Descriptive measures were determined for the continuous data. To check the internal consistency of the questionnaire, item analysis was carried out. Pearsons's correlation test was performed to determine the test-retest reliability of the questionnaire. Mann-Whitney U test was carried out to check the significant difference on total social anxiety score across social and clinical situations. Kruskell-Wallis test, Mann-Whitney U test and Chi-Square test were performed on categorical variables to check the significant difference between the groups of independent variables and the association between the variables respectively

RESULTS

Data was collected from 126 participants in total; however, two of the participants were in the exclusion criteria. Hence a total of 124 students were considered for the study, 104 female and 20 male participants and age of the participants ranged from 18 to 32 (20.76 ± 2.28). The questionnaire had two subsections, 'Social' and 'Clinical'. In social section 10 items that focused on the anxiety status in a personal life such as "Do you feel you are unable to communicate efficiently and effectively with others?", "Do you feel scared while interacting with strangers?" etc. were included. In clinical section 8 items relevant to the daily experience in clinics such as "Do you have the fear of being watched by others while testing

patients?", "Do you feel tense while reporting case findings to supervisors?" etc. were included. Participants had rated in on a 5 point rating scale. The rating chosen by participants for each question was considered to be the score for that question. i.e. if the participant chose a rating of '2' for a question then the score for that question would be '2'. All the scores were summed up to get total scores for each subject. Total score of the whole questionnaire (sum of scores obtained for each question) ranged from '0' to '72'. The overall mean of the questionnaire was 28.16 with standard deviation of 13.7. Total mean and standard deviation of the two subsections of the questionnaire (social and clinical) were 16.24±8.27and 11.95 ±6.54 respectively.

Table 1: Cutoff scores.

Anxiety level	Mean cutoff score
Mild	≤2.339
Moderate	2.34-3.669
Severe	≥ 3.67

Mean range of the 5 point rating scale was in between 0-4. Mean of all rating of all questions was used as a criterion to classify level of anxiety (Table 1). The participants were classified into 3 different categories of anxiety level; mild, moderate and severe, based on these mean scores obtained. Graphical representation of percentage of mean scores showed that in overall 82.3% of subjects are under mild anxiety level, 16.9% are under moderate anxiety level and 0.8% was under severe anxiety level (Figure 2).

Further scores for two sub sections; clinical and social were calculated separately since one of the main objectives of the study was to compare the anxiety level of the audiology/SLP across the situations. Figure 1 also shows distribution of anxiety level in social and clinical environment among ASLP's. From the results it was observed that majority of students reported to be having either mild level or moderate level of anxiety in both situations. In social situation however we can see an increment in moderate level of anxiety compared with the clinical environment.

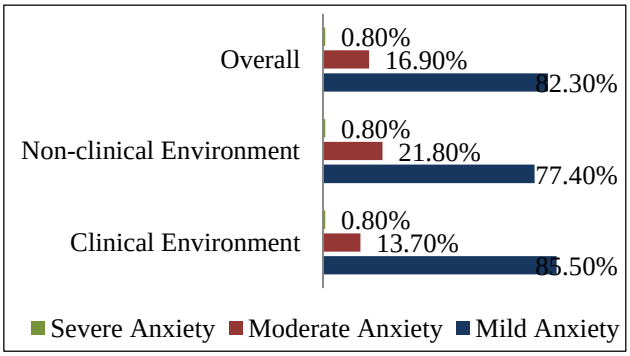

Figure 2: Graphical representation of anxiety level in percentages among student ASLP's across social and clinical situations.

Item analysis

The scale mean and scale variance if a single item is deleted is shown in the Table 2. Statistical measures such as global alpha as well as alphas if a single item is deleted were also obtained. The overall questionnaire had a global alpha of 0.926; furthermore, global alphas for clinical and non-clinical/social sections were 0.865 and 0.894 respectively indicating high internal consistency of the questionnaire. Results of corrected item-total correlation for all the items are also shown in the same table. According to Pallant (2003), the values of item-total correlation should have a minimum value of 0.3 and a maximum value of 0.8. And in these scales the item-total correlation values are all in between 0.3-0.8.

Table 2: Item analysis.

	Global alpha score	Number of items	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Global alpha if item deleted
Non- clinical/ social environment						
Item 1	0.894	10	14.7073	58.455	0.620	0.885
Item 2			14.2114	57.988	0.554	0.889
Item 3			14.5854	56.720	0.652	0.882
Item 4			15.0732	57.527	0.643	0.883
Item 5			14.7967	56.917	0.613	0.885
Item 6			14.8049	54.011	0.767	0.874
Item 7			14.5285	54.891	0.696	0.879
Item 8			14.6911	54.756	0.679	0.880
Item 9			14.4959	57.137	0.549	0.890
Item 10			14.5935	56.587	0.602	0.886
Clinical environment						
Item 11	0.865	8	10.1774	34.342	0.568	0.853
Item 12			9.6774	34.432	0.508	0.860
Item 13			10.4516	32.087	0.621	0.848

Continued.

	Global alpha score	Number of items	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Global alpha if item deleted
Item 14			10.4194	31.676	0.681	0.840
Item 15			10.0968	32.137	0.701	0.838
Item 16			11.1935	34.954	0.566	0.853
Item 17			11.3952	35.769	0.564	0.854
Item 18			10.2500	32.091	0.720	0.836

Test-retest reliability

For the purpose of test retest reliability, questionnaire was sent to the same participants and data was recollected after 2 months. Among the 124 participants, 25% of participants took part in retest reliability.

Pearson's correlation test was determined to check the test-retest reliability of the Social anxiety questionnaire. The test retest stability for the total score found to be high with r=0.773and p<0.0001. As environment wise, the value of r for clinical section of the questionnaire was 0.806 indicating very strong reliability with p<0.0001 and in the social section value of r was 0.689 indicating strong reliability with p<0.0001. Results are given in the Table 3.

Table 3: Test-retest reliability.

	Pearson's correlation coefficient	P value
Overall	0.773	0.000
Clinical	0.806	0.000
Social	0.689	0.000

Comparison on total anxiety score across social and clinical situations

Mann-Whitney U test was performed to evaluate whether total anxiety score differed by social and clinical situation. The results indicated that there was a significant difference between the total anxiety score of social and clinical situation; *U*=541.300, z=-4.031 and p=0.000.

Influence of traumatic life events

Traumatic life events such as bullying, humiliation, trauma, family conflicts etc. are found to be the risk factors of social anxiety according to the past studies. In the present study, we explored possible experiences contributing to their anxiety. Responses of participants showed that 10.4% had experienced bullying, 14.5% had experienced rejection, 6.5% had trauma, 5.6% had family conflict, 28.2% had more than one traumatic life events and 34.7% never had experienced any of the traumatic life events. Chi-square test for association of traumatic life events and level of anxiety is given in the Table 4, the results shown evidence for the existence of association between these two.

Table 4: Test for association: Chi-square test.

		Anxiety level			Total (%)	χ^2 test statistic value	P value
		Mild anxiety	Moderate anxiety	Severe anxiety			
Traumatic life events	Bullying	11	2	0	13 (10.4)	22.449	0.013
	Rejection	14	4	0	18 (14.5)		
	Trauma	6	2	0	8 (6.45)		
	Family conflict	6	1	0	7 (5.64)		
	Zero negative experiences	41	2	0	43 (34.67)		
	More than one negative experiences	24	10	1	35 (28.2)		
Total		102	21	1	124		

Influence of traumatic life events on anxiety score was tested by considering different negative experiences as independent factors and anxiety scores as dependent variable. Kruskell-Wallis test was carried out for this (Table 5). It was found that there was a statistically significant difference on social anxiety scores based on the independent factor 'Traumatic life events'.

Influence of age, gender and current academic year

Factors such as 'Age', 'Gender' and 'Current Academic Year' were also considered as the influencing factors of social anxiety and certain statistical tests such as Mann-Whitney U test and Kruskal Wallis test were carried out to check this assumption. The results (Table 5) showed that there was a statistically significant difference on total

anxiety score based on age but there was no significant difference on social anxiety scores based on "current academic year" of the participants.

There was a significant difference on social anxiety scores based on the factor 'gender' in the overall section of the questionnaire, however, when it comes to the sub-sectional part of the questionnaire there was no significant difference on the anxiety score.

Table 5: Significant influence of independent factors on anxiety score.

	Variables	Test statistic score	df	p-value
Overall	Age (yrs)	10.286[a]	2	0.006*
	Gender	748.50[b]	-	0.048*
	Academic year	9.910[a]	5	0.078
	Traumatic life events	22.221[a]	5	0.000*
In clinics	Age (yrs)	11.003[a]	2	0.004*
	Gender	795.00[b]	-	0.096
	Academic year	10.272[a]	5	0.068
	Traumatic life events	18.629[a]	5	0.002*
Non - clinical	Age (yrs)	6.542[a]	2	0.038*
	Gender	766.00[b]	-	0.062
	Academic year	9.237[a]	5	0.100
	Traumatic life events	20.268[a]	5	0.001*

[a]Kruskal-Wallis test, [b]Mann-Whitney U test, *result is statistically significant.

Presence of mental disorders within the family

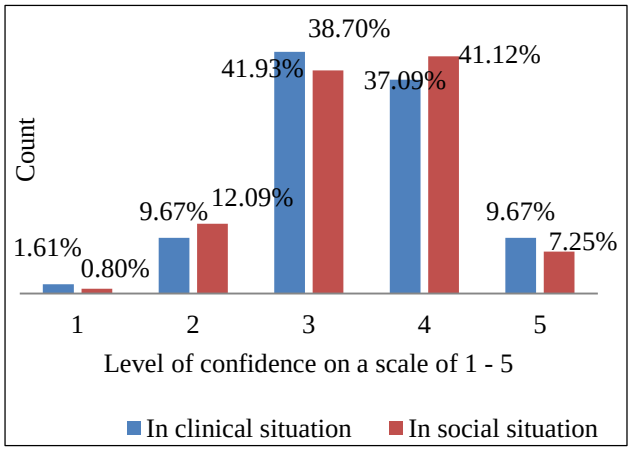

Figure 3: Graphical representation of confidence level in percentage for two different situations; social and clinical, whereas 1 indicating very low confidence and 5 indicating very high level of confidence.

In the study 113 participants reported that none of their family members were diagnosed with mental disorders or they are not aware about the past history of their family members whereas, 11 participants reported that their family members had been diagnosed with mental disorders and these 11 participants are coming under the mild anxiety level. Mental disorders within the family can also be one of the risk factors associated with social anxiety but the study need to be conducted in depth with large sample size in order to prove this assumption.

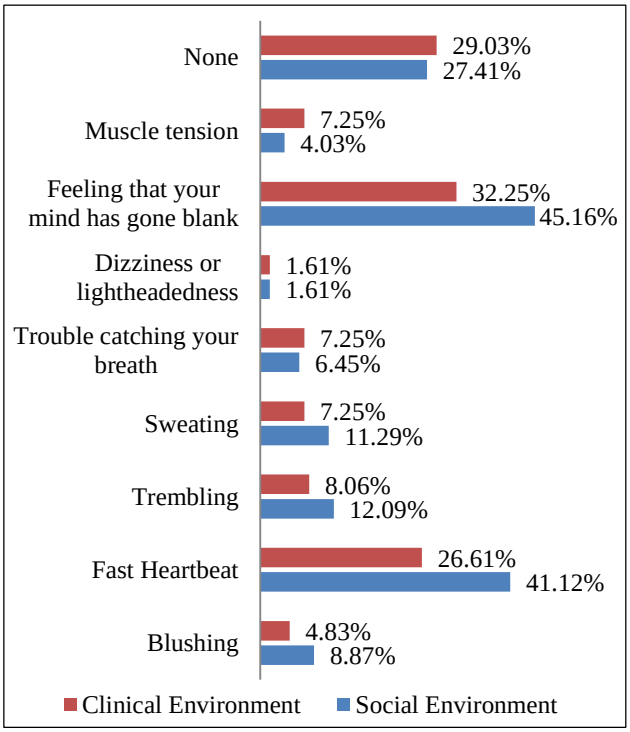

Figure 4: Graphical representation of percentage of occurrence of symptoms both in clinical and non-clinical situations.

DISCUSSION

The gender distribution among respondents i.e. 104 female vs. 20 males is representative of gender distribution among the student population of the chosen profession for the study. Speech and hearing discipline has higher number of female students. Our sample therefore represents the population gender distribution adequately.

One of the main aims of the study was to compare the anxiety level among student audiologist and speech language pathologists between their personal and professional life. The questionnaire was made in such a way that it will measure the anxiety level both in social and clinical situations and the results indicated that there was a significant difference on social anxiety score across the situations. It was also observed that the majority of the students are having either mild or moderate levels of anxiety in both situations. Again, the distribution of anxiety levels across clinical and social situations was almost the same except for the fact that there is an increment in the number of people having moderate level of anxiety in social situations. The reason for this might

be, as they are medical students they are getting the training. It involves communication and interaction with patients and their care takers who may express negative reactions and put undue demands on work of the respondents. During the clinical training students are exposed to the different challenging situations and how to tackle the same under the supervision of professionals in the field. Results also reflect the influence of mentoring and the learning process in clinical training programs that helps them develop a sense of care towards the patients and also work on their anxiety level. One on one mentoring they receive through their supervisors may be beneficial.

Second aim of the study was to check the reliability of the questionnaire which is designed to measure the construct social anxiety. Internal consistency of the questionnaire was checked using Cronbach's alpha or global alpha and the obtained global alpha value indicated strong internal consistency. Item analysis showed that the items were reliable and consistent for the sample of the study. Therefore, tool can be used in India and specifically among speech and hearing disciplines. Later test-retest reliability was carried out to check the reliability of the questionnaire and the results indicated high correlation which was implying strong reliability of the questionnaire.

Some of the past studies had discussed about several risk factors that might cause for social anxiety. In this present study also the researchers tried to check whether there was any association between the risk factors and social anxiety score. Kruskal-Wallis test was performed to check the significant difference on the social anxiety scores based on traumatic life events (bullying, humiliation, rejection, family conflict, trauma). And the results indicated a significant difference on social anxiety score. Chi-square test was also carried out to check the association between 'traumatic life events' and 'social anxiety level' and results had shown an association between these two. Similar case was also observed in the study done by Bandelow et al. Their study showed that the effect of risk factors was higher in the patient group (participants with anxiety disorder) than the control group. Current study also considered age, gender and current academic year as the independent factors that might influence the social anxiety score and Kruskal Wallis test and Mann-Whitney U test was performed to check the significant difference on the social anxiety score. From the results it was found that age as an influencing factor. The influence of life experience and maturity can have an impact on the social anxiety level in both social and clinical situations. Some of the previous studies had checked whether gender is an influencing factor in social anxiety or not, in present study also the researchers checked this and a significant difference on social anxiety score based on gender was observed for overall section, however we can't conclude that gender as an influencing factor since the gender distribution was not equal and the number of female participants were comparatively very high.[7]

The study checked the presence or the history of mental disorders within the family of the participants. But only 11 participants reported the history of mental disorders within their family. Since there wasn't enough information which could help us to make an interpretation, we were unable to make a statement regarding the same. Though the current study confirms the possible influence of family history on anxiety, this needs to be studied extensively in future.

Confidence levels of the participants in social and clinical situations were measured on a scale of 1 to 5. A slight change in the level of confidence was observed among the participants across social and clinical situations. 46% of the participants said to have high level of confidence in clinical situation while 48% of the participant said that they feel more confident in social situation. And graphical representation for the possible symptoms of social anxiety among the participants are also given (Figure 1 and 2).

As they are under training to be health care professionals, having anxiety issues unresolved may interfere in effective deliverance of their roles and responsibilities and therefore programs addressing this issue may be warranted either during their UG/ PG program or as FDP during early career years.

CONCLUSION

The focus of the present study was to assess social anxiety among trainee Audiologist and Speech Language Pathologist in Bengaluru city and also to assess the same across scenarios i.e, clinical and social, by using a newly developed questionnaire. The study was able to deliver the answers to the questions of the researcher that is, first, the study was able to assert the use of this questionnaire in the target population across scenarios. Second, study found a statistically significant difference on social anxiety score between different scenarios i.e, social and professional. However, due to small sample size and unequal gender distribution few research questions were left unanswered. Importantly the study has implications towards periodic monitor of the mental health among para-medical students and professionals.

Recommendations

Criterion validity can be carry out to measure the accuracy of the questionnaire.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Babu P, Rajan R, Suresh T, Srividya A. Social anxiety among trainee audiologist and speech language pathologist in Bengaluru: a cross sectional study. Int J Community Med Public Health 2023;10:2831-8.