

Original article

# Development and validation of Speech-Language Pathology Occupational Stress Questionnaire (SLP-OSQ)

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## ABSTRACT

**Background:** The objectives of the study were to develop and validate the Speech-Language Pathology Occupational Stress Questionnaire (SLP-OSQ). Further, to administer the questionnaire on practicing speech language pathologists in India across different age groups, gender, and work settings.

**Methods:** A cross-sectional Questionnaire based study design based on structured questionnaire was used. Questionnaire comprised of demographic information followed by 34 items on different aspects of occupational stressors. 166 speech-language pathologists working in India with more than one year of experience across diverse work settings participated. Descriptive statistics, Chi-square analysis, and Cronbach's alpha were carried out. After testing the assumptions, Exploratory Factor Analysis with principal axis factoring and varimax rotation was carried out.

**Results:** Based on the parallel analysis method and the scree plots, four factors were retained. These were named as patient-related responsibilities, professional life at work, professional life and social life teamwork and managing time. Cronbach's Alpha of 0.95 was obtained for the questionnaire.

**Conclusions:** The findings of the present study thus are a step towards better understanding factors leading to occupational stress among SLPs in India.

## 1. Introduction

Speech-language pathologists (SLPs) work in the areas of communication and swallowing disorders across the lifespan in diverse work settings. They are involved in education, supervision, research, clinical work, administration, and advocacy. Studies exploring occupational stress have been carried out in several allied healthcare professionals such as audiologists,<sup>1,2</sup> physiotherapists,<sup>3,4</sup> occupational therapists<sup>5</sup> as well as SLPs<sup>6–8</sup> to name a few. Few questionnaires have been developed or adapted to explore the occupational stress among SLPs.

The Speech Language Pathology Stress Inventory (SLPSI) was developed for exploring occupational stress among school based SLPs. The 48-item SLPSI questionnaire was based on six factors, which included: bureaucratic limitations, emotional-fatigue, time and workload management, instructional limitation, bio-behavioural manifestation, and lack of professional support.<sup>8</sup> Whereas other studies have adapted existing questionnaires for exploring occupational stress such as the Korean Occupational Stress Scale- Short Form (KOSS-SF),<sup>9</sup> A Shortened Stress Evaluation Tool<sup>10</sup> and Health Professions Stress

Inventory (HPSI).<sup>11</sup>

A recent review explored the job satisfaction, wellbeing, and burnout among SLPs across 17 studies.<sup>7</sup> High caseload, overwork, lack of autonomy, lack of professional support, bureaucratic restrictions, and inadequate salary were some of the common stressors identified by the SLPs.<sup>10–13</sup> Heavy workload was described as being stressful and overwhelming and one of the contributors for job attrition among Australian SLPs. Some of the other reasons included feeling isolated, poor autonomy, remuneration issues, and lack of recognition about the profession.<sup>10</sup>

The SLPs in India work in different work settings such as private practice, hospitals, medical rehabilitation centres, academic institutions, and non-government organisations. In many instances, they are involved in multiple roles in a particular work setting and might work in multiple settings as well. SLPs working in each of the different work setting have varied challenges. Lack of adequate manpower, lack of standardised test materials in Indian languages, diversity of Indian languages, low face value given for speech and language therapy, poor awareness about the profession, and language barriers have been some

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of the barriers faced by SLPs in India.<sup>14</sup> Further, suitable monetary compensation, feeling of being appreciated and improved the training standards emerged to some of the reasons contributing to job satisfaction among SLPs in India.<sup>15</sup>

Some of these factors leading to occupational stress are unique to countries such as India where the field of speech-language pathology is relatively recent and expanding, a need was felt to explore the occupational stress among SLPs in India. The objectives of the study were to develop and validate the Speech-Language Pathology Occupational Stress Questionnaire (SLP-OSQ). Further, to administer the questionnaire on practicing speech language pathologists in India across different age groups, gender, and work settings.

## 2. Method

The study was carried out upon receipt of approval from the Institutional Ethics Committee approval (IEC KMC MLR 03–2021/98).

### 2.1. Survey tool

The questionnaire comprised of two sections, demographic details form and Speech Language Pathologist Occupational Stress Questionnaire (SLP-OSQ). The total questionnaire took approximately 10–12 min to be completed. Demographic details form was used to collect biographical information from the participants. However, personal identifying details such as name, email address and contact details were not included making it impossible to know the respondents. Details such as age, gender, years of experience, work setting, highest degree, number of working days in a week and average work hours per day were collected. The SLP-OSQ comprised of 34 items on different aspects of occupational stressors that could be experienced by speech-language pathologists.

The SLP-OSQ was developed by reviewing the previous literature<sup>1,2,8,9,16</sup> and expert suggestions. The developed questionnaire was shared with a panel of five experts (with a minimum of five years of work experience in the field of speech-language pathology) for content validation. These experts were asked to rate the questions as not relevant, somewhat relevant, quite relevant, and relevant.<sup>17</sup> Questions rated as quite relevant and relevant were retained and a final questionnaire was developed. Scale-Content Validity Index (S-CVI) was calculated to establish content validity index. The S-CVI score obtained was 0.90, indicating an excellent content validity for the developed questionnaire.<sup>18</sup> The questionnaire was developed and self-administered in English language. The respondents were instructed to rate how each item caused stress to them in their day-to-day life using a five-point Likert scale from never (1) to very often (5). The demographic details form and SLP-OSQ were converted into an online Google Form which also included the informed consent form.

### 2.2. Participants

The sample comprised of speech-language pathologists registered under the Rehabilitation Council of India and presently practising in India. The entry level qualification for SLPs in India is a bachelor's degree in audiology and speech language pathology. SLPs who held a minimum of a bachelor's degree with at least one-year work experience were included in the study. Those professionals who identified themselves as audiologists, students, and practising in any other country were excluded. The link to this Google Form was across via electronic mail to the speech-language pathologists based on the inclusion criteria.

### 2.3. Statistical analysis

Content validity index was used to check for content validity. Descriptive statistics was used to summarise the demographic details of the participants. The responses for all 34-items were summarised using

frequency, percentage, and median and interquartile range. Differences in occupational stress was examined in relation to age, gender, degree using Pearson's Chi Square test.

The exploratory factor analysis with principal axis factoring and varimax rotation extracted latent factors associated with occupational stress among the speech language pathologists. Factor loadings of 0.3 or higher were considered as evidence that the items loaded onto a common factor. Internal consistency was computed for the overall scale and each factor using Cronbach's Alpha. All statistical analysis was carried out using Jamovi 2.2.5.<sup>19</sup>

## 3. Results

One hundred and sixty-six speech-language pathologists participated in the study with mean age of  $27.9 \pm 6.60$  years (age range 22–65 years) and mean experience of  $5.28 \pm 6.82$  years (range 1–45 years). The participants included 77.1% females, 21.1% males while 1.8% preferred not to say. More than half of the participants held a master's degree (52.4%) followed by bachelors (38%) or PhD (9%), while 1 participant (0.6%) had also completed a post-doctoral fellowship. The working hours per day ranged from 3 to 13 h ( $7.94 \pm 1.49$ ) and days between 4 and 7 ( $5.78 \pm 0.48$ ). Further, 54.8% worked in clinical, 41.6% in hospital, 34.3% in academic and 4.8% in Non-Governmental Organisations.

The SLPs were instructed to rate how each item caused stress to them in their day-to-day life using a five-point Likert scale from never (1) to very often (5), their responses as have been tabulated in [Table 1](#).

As noted in [Table 1](#), the results obtained from the study show that the limited SLPs responded as often or very often stressful for any of the items in the questionnaire. Based on the median obtained for each of the items, it can be noted the SLPs reported the occupational stress to be rarely to sometimes (median value between 2 and 3).

The responses of the SLPs on occupational stress were compared with respect to gender, age, and degree using Pearson's Chi-Square Test. Gender did not significantly contribute towards any of the items on occupational stress among the SLPs. On comparing the responses of the SLPs on occupational stress with respect to age it was identified that lack of awareness about the profession ( $\chi^2 = 11.44$  (4),  $p = 0.02$ ), administration responsibilities ( $\chi^2 = 12.27$  (4),  $p = 0.01$ ), planning time distribution for a therapy ( $\chi^2 = 13.51$  (4),  $p = 0.01$ ), and salary based on achieving financial targets ( $\chi^2 = 13.13$  (4),  $p = 0.01$ ) associated with levels of occupational stress. On comparing the responses of the SLPs on occupational stress with respect to the level of education, it was identified that lack of awareness about the profession ( $\chi^2 = 31.11$  (4),  $p < 0.01$ ) and inadequate instrumentation/equipment ( $\chi^2 = 23.64$  (4),  $p = 0.02$ ) had a significant association with occupational stress. Lack of awareness about the profession was identified to be a common item in age and degree to have a significant association with occupational stress among SLPs.

### 3.1. Exploratory factor analysis

The Exploratory Factor Analysis (EFA) technique was used to identify the latent variables based on the data obtained from the 34-item five-point Likert scale questionnaire. Prior to its implementation, the assumptions associated with EFA were tested.

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO MSA) is a statistic that indicates the proportion of variance in your variables that might be caused by underlying factors. Typically, the values lie between 0 and 1. Values close to 1.0 indicate that factor analysis is appropriate for structure detection in the data. In the present study, the overall KMO MSA = 0.910 as depicted in [Table 2](#).

Bartlett's test of sphericity tests the hypothesis that the correlation matrix associated with the underlying data is an identity matrix, which would indicate that variables are unrelated and therefore unsuitable for structure detection. Small values (less than 0.05) of the significance level

**Table 1**  
Frequency distribution of responses for SLP-OSQ.

Items	Never n (%)	Rarely	Sometimes	Often	Very Often	Median (IQR)
Planning and execution of sessions	21 (12.7)	44 (26.5)	62 (37.3)	29 (17.5)	10 (6)	3 (1)
Poor prognosis in patients	12 (7.2)	47 (16.9)	70 (42.2)	28 (16.9)	9 (5.4)	3 (1)
Expectations of patients or family	6 (3.6)	33 (19.9)	65 (39.2)	44 (26.5)	18 (10.8)	3 (1)
Documentation	15 (9)	25 (15.1)	66 (39.8)	38 (22.9)	22 (13.3)	3 (1)
Time management	24 (14.5)	38 (22.9)	50 (30.1)	36 (21.7)	18 (10.8)	3 (2)
Dealing with co-workers	36 (21.7)	53 (31.9)	42 (25.3)	20 (12)	15 (9)	2 (1)
Dealing with supervisors	37 (22.3)	43 (25.9)	52 (31.3)	17 (10.2)	17 (10.2)	3 (1)
Being a part of a multi-disciplinary team	37 (22.3)	50 (30.1)	42 (25.3)	22 (13.3)	15 (9)	2 (1)
Financial issues	22 (13.3)	47 (28.3)	57 (34.3)	25 (15.1)	15 (9)	3 (1)
Un-equal distribution of work responsibilities	22 (13.3)	35 (21.1)	64 (38.6)	35 (21.1)	10 (6)	3 (2)
Lack of awareness about the profession	34 (20.5)	40 (24.1)	45 (27.1)	24 (14.5)	23 (13.9)	3 (2)
Administration responsibilities	31 (18.7)	37 (22.3)	52 (31.3)	35 (21.1)	11 (6.6)	3 (2)
Inadequate instrumentation/equipment	25 (15.1)	48 (28.9)	55 (33.1)	21 (12.7)	17 (10.2)	3 (1)
Being up-to-date	29 (17.5)	37 (22.3)	59 (35.5)	29 (17.5)	12 (7.2)	3 (1)
Managing social life outside work	30 (18.1)	30 (18.1)	56 (33.7)	31 (18.7)	19 (11.4)	3 (2)
Lack of understanding from family and friends about my work as a SLP	38 (22.9)	45 (27.1)	41 (24.7)	26 (15.7)	16 (9.6)	2.50 (1.75)
Overload of patients	15 (9)	33 (19.9)	81 (48.8)	22 (13.3)	15 (9)	3 (1)
Lack of patients	52 (31.3)	56 (33.7)	37 (22.3)	17 (10.2)	4 (2.4)	2 (2)
Counselling	52 (31.3)	48 (28.9)	36 (21.7)	19 (11.4)	11 (6.6)	2 (2)
Maintaining patience while dealing with difficult to handle patients	32 (19.3)	40 (24.1)	57 (34.3)	23 (13.9)	14 (8.4)	3 (1)
Convincing patients to attend speech and/or language therapy	25 (15.1)	56 (33.7)	47 (28.3)	23 (13.9)	15 (9)	3 (1)
Maintaining work-life balance	24 (14.5)	34 (20.5)	53 (31.9)	40 (24.1)	15 (9)	3 (2)
Long work hours	24 (14.5)	35 (21.1)	52 (31.3)	36 (21.7)	19 (11.4)	3 (2)
Uncomfortable working conditions	46 (27.7)	42 (25.3)	49 (29.5)	20 (12)	9 (5.4)	2 (2)
Lack of job security and stability	49 (29.5)	37 (22.3)	47 (28.3)	18 (10.8)	15 (9)	2 (2)
Being creative during therapy	44 (26.5)	37 (22.3)	50 (30.1)	22 (13.3)	13 (7.8)	3 (2)
Lack of resources	30 (18.1)	53 (31.9)	54 (32.5)	21 (12.7)	8 (4.8)	2.50 (1)
Tele-practice	38 (22.9)	42 (25.3)	46 (27.7)	26 (15.7)	14 (8.4)	3 (1)
Inadequate salary	32 (19.3)	27 (16.3)	52 (31.3)	28 (16.9)	27 (16.3)	3 (2)
Attitudes and behaviour of other professionals	27 (16.3)	42 (25.3)	60 (36.1)	18 (10.8)	19 (11.4)	3 (1)
Lack of professional growth opportunities	21 (12.7)	48 (28.9)	56 (33.7)	20 (12)	21 (12.7)	3 (1)
Lack of adequate training	44 (26.5)	48 (28.9)	42 (25.3)	27 (16.3)	5 (3)	2 (2)
Planning time distribution for a therapy session	46 (27.7)	49 (29.5)	34 (20.5)	26 (15.7)	11 (6.6)	2 (2)
Salary based on achieving financial targets	46 (27.7)	42 (25.3)	38 (22.9)	23 (13.9)	17 (10.2)	2 (2)

indicate that factor analysis may be useful with your data. For the present study, the test is significant ( $\chi^2 = 3521$  (561),  $p < 0.001$ ) and hence, EFA is appropriate for structure detection in the data.

The EFA was implemented using the principal axis factoring extraction method with varimax rotation. Based on the parallel analysis method and the scree plots (Fig. 1), we retained four factors using the EFA as depicted in Table 3. Factor one patient-related responsibilities, comprises of 11 items, factor two, professional life at work, comprises of 13 items; factor three, professional life and social life includes 6 items; factor four, teamwork and managing time, includes 4 items.

### 3.2. Scree plot

Based on the parallel analysis method and the scree plots, we retained four factors using the EFA. Based on these items under each factor, the factors were renamed to denote the domains covered in the questionnaire. The factor 1 was renamed as patient-related responsibilities, factor 2 was renamed as professional life at work, factor 3 was renamed as professional and social life, and factor 4 was renamed as teamwork and managing time. Patient-related responsibilities comprise 11 items that include planning and execution of sessions, poor prognosis in patients, expectations of patient or family, documentation, being up-to-date, counselling, maintaining patience while dealing with difficult to handle patients, convincing patients to attend speech and/or language therapy, being creative during therapy, planning time distribution for a therapy session, and salary based on achieving the financial target. Professional life at work comprises 13 items that include financial issues, unequal distribution of work responsibilities, lack of awareness about the profession, inadequate instrumentation/equipment, lack of patients, uncomfortable working conditions, lack of job security and stability, lack of resources, tele-practice, insufficient salary, attitude and

behaviour of fellow professionals, lack of professional growth opportunities, and lack of adequate training. Professional life and social life comprise six items: administration responsibilities, managing social life outside work, lack of understanding from family and friends about my work as a speech-language pathologist, overload of patients, maintaining work-life balance, and long work hours. Teamwork and managing time comprise four items: time management, dealing with co-workers, dealing with supervisor, and being a part of a multi-disciplinary team.

### 3.3. Internal consistency

After factor analysis, a Cronbach's Alpha test was carried out to measure the internal consistency of the questionnaire and the four factors. The overall  $\alpha$  value of 0.95 is indicative of excellent internal consistency. As seen in Table 4, the  $\alpha$  values for each factor were also above 0.70, indicating very good internal consistency.

## 4. Discussion

Studies in healthcare professionals have highlighted the presence of occupational stress. SLPs are not immune to these factors and studies have been conducted across the globe to explore the same. In the Indian context, studies have been carried out in audiologists and SLPs exploring the occupational stress, professional quality of life and job satisfaction.<sup>1,15,16</sup> The findings of these studies have helped in understanding the factors contributing to occupational stress and affecting the professional quality of life among these professionals. The demographic details in the present study revealed a good distribution of SLPs from different work settings with a vast experience of 1–45 years. Majority of the respondents were females which is acceptable given the known gender imbalance in the field. On an average, the SLPs worked for almost 8 h a

**Table 2**  
Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.

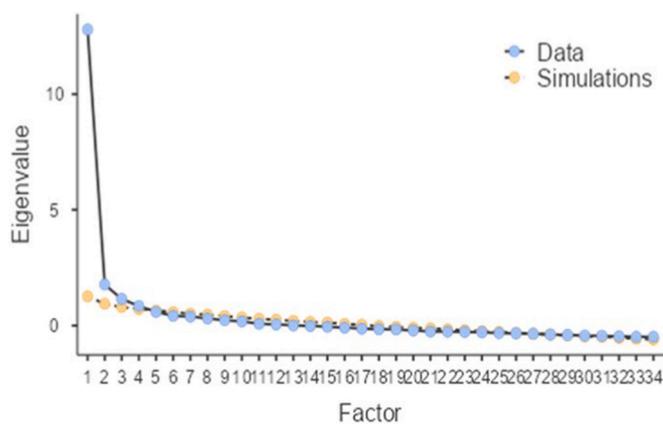
	Measure of Sampling Adequacy (MSA)
Overall	0.910
Planning and execution of sessions	0.962
Poor prognosis in patients	0.750
Expectations of patient or family	0.923
Documentation	0.917
Time management	0.903
Dealing with co-workers	0.921
Dealing with supervisors	0.932
Being a part of a multi-disciplinary team	0.909
Financial issues	0.905
Un-equal distribution of work responsibilities	0.887
Lack of awareness about the profession	0.924
Administration responsibilities	0.883
Inadequate instrumentation/equipment	0.876
Being up-to-date	0.932
Managing social life outside work	0.892
Lack of understanding from family and friends about my work as speech language pathologist	0.964
Overload of patients	0.934
Lack of patients	0.881
Counselling	0.895
Maintaining patience while dealing with difficult to handle patients	0.919
Convincing patients to attend speech and/or language therapy	0.954
Maintaining work-life balance	0.898
Long work hours	0.931
Uncomfortable working conditions	0.935
Lack of job security and stability	0.885
Being creative during therapy	0.929
Lack of resources	0.908
Tele-practice	0.924
Inadequate salary	0.913
Attitudes and behaviour of other professionals	0.860
Lack of professional growth opportunities	0.873
Lack of adequate training	0.958
Planning time distribution for a therapy session	0.885
Salary based on achieving financial targets	0.888

**Table 3**  
EFA results.

Factor loadings	Factor			
	1	2	3	4
Planning and execution of sessions	<b>0.62</b>			
Poor prognosis in patients	<b>0.30</b>			
Expectations of patient or family	<b>0.50</b>	0.30	0.31	
Documentation	<b>0.51</b>			
Time management	<b>0.50</b>			<b>0.52</b>
Dealing with co-workers				<b>0.70</b>
Dealing with supervisors				<b>0.58</b>
Being a part of a multidisciplinary team	0.36			<b>0.73</b>
Financial issues		<b>0.57</b>		
Un-equal distribution of work responsibilities		<b>0.51</b>	0.31	0.31
Lack of awareness about the profession		<b>0.45</b>		
Administration responsibilities				<b>0.38</b>
Inadequate instrumentation/equipment		<b>0.55</b>		
Being up- to- date	<b>0.50</b>		0.43	
Managing social life outside work				<b>0.80</b>
Lack of understanding from family and friends about my work as speech language pathologist		0.43		<b>0.44</b>
Overload of patients				<b>0.41</b>
Lack of patients	0.37	<b>0.38</b>		
Counselling	<b>0.68</b>			
Maintaining patience while dealing with difficult to handle patients	<b>0.65</b>			
Convincing patients to attend speech and/or language therapy	<b>0.58</b>	0.32	0.33	
Maintaining work-life balance				<b>0.73</b>
Long work hours		0.36		<b>0.42</b>
Uncomfortable working condition		<b>0.55</b>		
Lack of job security and stability		<b>0.56</b>		
Being creative during therapy	<b>0.66</b>			
Lack of resources	0.42	<b>0.57</b>		
Tele-Practice	0.40	<b>0.41</b>		
Inadequate salary		<b>0.73</b>		
Attitudes and behaviour of other professionals		<b>0.67</b>		0.39
Lack of professional growth opportunities		<b>0.72</b>		0.37
Lack of adequate training	0.42	<b>0.60</b>		
Planning time distribution for a therapy session	<b>0.73</b>	0.36		
Salary based on achieving financial target	<b>0.66</b>	0.44		

**Table 4**  
Cronbach's alpha.

	Cronbach's $\alpha$
Overall	0.95
Patient-related responsibilities	0.91
Patient-related responsibilities	0.90
Professional life and social life	0.82
Teamwork and managing time	0.84



**Fig. 1.** Scree Plot.

day for more than 5 days in a week.

Limited SLPs responded as often or very often stressful for any of the items in the questionnaire. Based on the median for each item, the SLPs reported the occupational stress to range between rarely to sometimes. Comparisons were made for association between gender, age, and degree on occupational stress. Gender did not significantly contribute towards any of the items on occupational stress among the SLPs in the present study. On comparing the responses of SLPs with respect to age it was identified that items like lack of awareness about the profession, administration responsibilities, planning time distribution for a therapy

session and salary based on achieving financial targets associated with occupational stress. Administrative responsibilities which include handling patients, managing case load, and fixing appointments makes it a tedious process leading to emotional exhaustion and burnout.<sup>6,8,9</sup> With respect to level of education, lack of awareness about the profession and inadequate instrumentation/equipment were identified to have a significant association with occupational stress. Lack of awareness about the profession was identified to be a common item in age and degree to have a significant association with occupational stress among SLPs. Lack of awareness about the profession and professional role played by SLPs has been well spoken about in the previous studies.<sup>1,14,15</sup> Steps needs to be taken to improve the awareness and importance.

Exploratory factor analysis was carried out to identify and establish the constructs/factors among the measured items. Component loading was examined and only those items were retained for loadings above 0.3. Based on the exploratory factor analysis, four factors emerged: patient related responsibilities, professional life at work, professional life and social life, teamwork and managing time. The overall  $\alpha$  value of the tool was 0.95, indicative of excellent internal consistency and the

tool to be well conceived and cohesive. Further, the  $\alpha$  values for each factor were also above 0.70, indicating very good internal consistency and cohesion.

Occupational stress has been known to impact the work efficacy, work output as well as the overall wellbeing. It is of the utmost importance especially in healthcare professionals such as SLPs that occupational stress is identified and managed early. The findings of the present study thus are a step towards better understanding factors leading to occupational stress among SLPs in India. The specific items help to identify the exact reason leading to stress and can be independently treated.

## 5. Limitations and future direction

The online survey was conducted during the ongoing COVID-19 pandemic which has been known to have an impact on the emotional wellbeing of the professionals. Thus, this could have had an influence on the ratings provided by the SLPs. The emotional status of the participant at the time of participation was unknown. Thus, the influence of this emotional status on their responses to items related to occupational stress could not be controlled. Studies are needed to explore the strategies adopted by the SLPs to overcome the occupational stress. The developed SLP-OSQ can be used for conducting studies across different countries to compare occupational stress levels among the SLPs.

## Ethics approval

The study was carried out after the Institutional Ethical Committee approval from Kasturba Medical College, Mangalore (IEC KMC MLR 03–2021/98).

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## Declaration of competing interest

The authors declare that they have no conflict of interest.

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