

**DEVELOPMENT OF A QUESTIONNAIRE TO ASSESS PSYCHOSOCIAL
ISSUES IN PROFESSIONAL VOICE USERS**

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19SLP001

**This Dissertation is submitted as part of fulfilment for the Degree of
Master of Science in Speech Language Pathology
University of Mysore, Mysuru**



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September, 2021

Dedicated
To Dad

Certificate

This is to certify that this dissertation entitled “**Development of a Questionnaire to Assess Psychosocial Issues in Professional Voice Users**” is the bonafide work submitted as part of fulfilment for the Degree of Masters of Science in Speech Language Pathology of the student with Registration No. 19SLP001. This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other Universities for the award of any other diploma or degree.

Mysuru
September, 2021

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Certificate

This is to certify that this dissertation entitled “**Development of a Questionnaire to Assess Psychosocial Issues in Professional Voice Users**” has been prepared under our supervision and guidance. It is also certified that this has not been submitted earlier to any other Universities for the award of any other diploma or degree.

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Declaration

This dissertation entitled “**Development of a Questionnaire to Assess Psychosocial Issues in Professional Voice Users**” is the result of my own study under the guidance of Mr. Freddy Antony, Assistant Professor in Clinical Psychology and co-guidance of Dr. K Yeshoda. Associate Professor in Speech Science, All India Institute of Speech and Hearing and has not been submitted earlier to any other Universities for the award of any other diploma or degree.

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Chapter 1

INTRODUCTION

The prevalence of voice problems in the Professional Voice Users (PVUs) in India is varied. For example for primary school teachers it is around 17.4% (Devadas et al., 2017), for call centre operators it is around 59% (Devadas & Rajashekhar, 2013) and in singers it is about 35% (Devadas et al., 2020). Under the classification given by Koufman & Isaacson (1991) there are four levels (Level I, Level II, Level III, and Level IV) placed in the separate order based upon the vocal load and usage for their occupation like from singers to non-vocal professionals like labourers. As mentioned earlier, the Professional Voice User classification is divided into four levels, which are Level I (Elite Vocal performers): like actors and singers, for whom mild issue will affect their voice and work; Level II (Professional Voice users): like lecturers, politicians, for whom moderate issues will hamper their work; Level III (Non- Vocal Professionals): like professionals that deal in groups wherein only severe factors will only cause a problem and finally, Level IV (Non-vocal/Non- professionals): which includes people least impeded if there are any issues with their voice. These four levels would be of great interest when one talks about the vocal problems in people whose occupations depend on and because of their voice.

Variations in the anatomical and physiological framework (or rather pathologies) are considered major causes of these voice problems and a few other factors like genetics, personality, stress, anxiety, emotional distress, etc. In broader terms, factors affecting the psychological and social well-being also play a role in professionals having voice problems. When combined, these come to be known as psychosocial factors, which generally share a causal link with the health and effects on it. Psychosocial factors include stress, financial welling, depression, job control, etc.

Voice is the primary source of livelihood for professional voice users; these factors must be vital for assessment, management, and counselling. For the Indian population, specifically, these factors are overlooked.

Psychosocial factors have psychological, emotional & social influence on the person's physical and mental well-being. These factors are amongst the ones which tend to have a role and impact on work/job and its environment. Unhealthy working conditions or stress related to work can affect the performance immensely and, finally, could lead to a loss of employment in the worst case. These are limited to work-related issues or purely because of work and social and domestic problems, which will add to stress levels. There are variations when it comes to psychosocial problems. It varies from person to person. From context to context, like a singer getting overpaid for performance will lead to performance pressure and anxiety to outperform, which might cause voice issues like voice breaks and inability to hit higher notes. Although it might be beneficial for some people, it will have adverse effects on their health, increasing the patient's problem, especially for the voice users. There are many ways to view these factors; every country and culture have their perspectives, which tend to slightly differ, although the core remains the same. Interestingly, in earlier times, psychosocial factors were associated with and termed white-collar problems, which is now deemed because such issues tended to rise in multiple occupations.

Psychosocial factors are the ones that directly or indirectly influence the general health status of the individual. These can be the sole cause of the problem or can be recorded as an additional condition hampering the patient's current situation. Patients may be affected by these factors as multiple thoughts maybe borne in the patient's mind due to a present illness or problem. Terming these factors as circumstances can also be logical. Such issues tend to arise in certain specific scenarios that are very much

relevant to the current study on professional voice users. According to the International Classification of Diseases eleventh edition, numerous factors can affect a person's general health, including unemployment problems, problems with exposure, problems with relationships, and other social & behavioural conditions. Out of these many factors, individual factors would be majorly relevant for this study and the PVUs. These factors will include personality, stress or life events, and the general health status and their effect on the voice.

Psychosocial issues or factors are those factors, if left untreated or are not tackled appropriately, could hamper not only one but many aspects of the person, including his or her body, work, relationship, etc. Also, psychosocial as a term is instead a multidimensional domain that is less studied and explored. Thus, there is no streamlined or strict protocol to assess these factors and help a clinician rule out these possibilities. To evaluate these factors generally involves proper data collection, gathering the possible causatives of the present conditions, and then narrowing the search to specific issues that hold a significant percentage or role in leading to such a situation.

Now, why are these issues overlooked in the Indian scenario? Because of a lack of awareness and lack of a protocol or a questionnaire relevant to the Indian context. In contrast, in western culture, these issues are given much more importance as it would hurt the life and livelihood of not only one person but also the people around them, including the family and other employees, leading to low productivity. Therefore, higher standards of living, increased competition in every field of work, and lack of time and its management have created an imbalance between the personal and professional front, which makes this domain the need of hour domain to assess and be taken care of appropriately.

1.1 Personality and voice

Personality is one of the most challenging domains to be studied and concluded as stated by the World Health Organization. The term of great importance is Deviant personality, which bridges the gap between normal and abnormal character as both are not clearly defined in the literature. These traits tend to exist in a milder form. Still, the inflexibility of the responses in personal, social, and professional situations exhibited to a considerable degree leads to emotional distress and social disruption. These represent a notable deviancy from typical individuals in a given culture, condition, and perspective. There are distinguished personality attributes like aloofness, aggression, impulsiveness, anxiety, paranoid, etc. Knowing about all these personality attributes is out of the scope of this study. The aspect which personality easily influences is the voice—the premier reason being the easy manipulation of the voice. Few studies are reported about psychosocial factors solely causing the voice problem, although more factors play a concomitant role when we talk about voice disorders. Like low-level personality traits, anxiety, unhappiness, aggressiveness, impulsiveness, and social dominance are among the few personality features found in patients with voice disorders like functional dysphonia. No clear cut identification is made to state the causal mechanism of such voice disorders and the relationship with these factors.

1.2 Life events/stress and voice

One of the significant factors holding a maximal role when discussing psychosocial issues and their problems. Life events or stress itself aren't an illness but based upon exposure, it can lead to depression, anxiety, and burnout. This will harm the performance at work. This will lead to irritability and withdrawal from multiple social environments like relationships with employees, spouses, etc. Musculoskeletal voice disorders are one of the examples wherein stress and tension lead to vocal issues.

Life events mean multiple situations like divorce, performance pressure, significant business losses, or work readjustments could lead to such types of problems, which will, in turn, affect their voice, hampering their condition.

1.3 General Health Status and voice

Health status includes a person's well-being in various situations like if the person is keeping happy, is he or she under prolonged strain, does he feel out of place or lose confidence, etc. All these factors, in one way, can be correlated with the PVUs and their occupations. Effect on such aspects will surely hinder a person's work, further affecting his emotional & social well-being. There are multiple General Health Questionnaire, which ranges from 4 to 50 questions. Appropriate questionnaire with respect to the present study will be considered.

Therefore, personality, stress, and general health status are the key factors that would play a significant role in the personal and professional front when one talks about psychosocial issues in Professional voice users.

1.4 Objectives

- To compile the findings and content validation of the factors included in the questionnaire.
- To develop a questionnaire to obtain information about the Psychosocial issues.
- To administer the questionnaire on the Professional Voice Users.
- To check the differences in factors affecting the four classes of voice users.

Chapter 2

LITERATURE REVIEW

2.1 Psychosocial basis of Voice Disorders

Baker (2008) studied the role of psychosocial and psychogenic factors in the development of Functional Voice Disorders (FVD). He talked about multiple models (Conversion reactions, Reformulated psychoanalytic and psychosocial model, poorly regulated laryngeal muscle tension, Dispositional trait theory & Emotion processing deficits) and correlated it with the FVD. There was substantial evidence (specifically in women) about the dispositional factors that predispose the individuals to FVD. These were related to personality traits, such as higher levels of anxiety & depressive illness and difficulties expressing negative emotions. He also withdrew evidence from neuroanatomy and associated it with psychological features (like visceral activation, action tendencies, discrete emotions, blends of feelings). He talked about the anatomical areas, including the brainstem, diencephalon, limbic, para-limbic, and pre-frontal cortex, responsible for previously mentioned functions. He highlighted the demographic details of persons with FVD, stressful events preceding onset, coping styles, personality traits, and psychiatric illnesses. Therefore, he critically claimed that cognitive, behavioural, affective and neurophysiological basis underlies the development of such complex voice disorders with severe implications for their general and mental health.

2.2 Psychosocial Factors in Voice Disorders

The relationship between psychosocial factors and functional dysphonia was studied by Deary and Miller (2011), suggesting that multiple psychosocial factors are directly or indirectly associated with Functional dysphonia or other voice disorders.

They put forth a three-stage explanation as a causal factor for these disorders, which are a predisposing factor (could be genetic, personality-related), precipitating factor (could be related to life events, coping up, and vocal vulnerability) and perpetuating factor (i.e. what keeps the disorder going). These three stages also correlated with the Baker's model (Baker et al., 2007) and Butcher's model (Butcher et al., 2007), which stated that emotional processing deficits lead to distress these voice users. Then came a concept of Powerlessness in the System (PITS), also known as PITS, which talks about the unexpressed emotions causing physical tension, hampering the voice. Here, Powerlessness is situational Powerlessness, i.e. inability to cope up with stress and demands. Thus, this review confirms that functional dysphonia has a predisposing history of physical or emotional factors contributing to the individual's condition and the considerable impact of life events and prolonged exposure to stress. Also, they commented that individualistic variations are present concerning the conceptualization of functional dysphonia. Not all are distressed due to dysphonia, also it is not of the same degree if disturbed.

Further, they highlighted the most vulnerable aspect out of the whole body physiology is the voice (linking it to occupational use). Current literature suggests a coupled role of emotions and repression as the significant pathogenic cause of dysphonia; thus, it is recommended for the speech-language pathologist to find the meaning of the symptom when dealing with such patients. But still, these psychosocial factors are the common causes of such issues and can only explain the general tendency to the somatic symptoms and emotional problems but do not provide why they lose their voice. Lastly, they commented that vocal vulnerability is primarily related to the increased vocal load on the individual, majorly due to their occupational demands.

2.3 Psychological Factors in Voice Disorders

In a study by Mirza et al. (2003) the authors tried to study any co-existing relationship between voice disorders and associated psychiatric pathologies in terms of prevalence. They stated that psychological illness could be a cause as well as a consequence of the voice disorder. Different personality types and associated behaviours can be added to the developmental factors for voice disorders. Roy and Bless, (2000) also tried to study different personality types for functional dysphonia, spasmodic dysphonia, and vocal fold paralysis. Hypersensitivity to somatic sensations like pharyngeal and laryngeal sensations for people with voice disorders highlights a possible link between these disorders and the development of depression & anxiety. In this study, patients after laryngeal evaluation were grouped into five categories (1) functional voice disorder, (2) spasmodic dysphonia, (3) vocal fold paralysis, (4) vocal nodules & (5) vocal fold malignancies.

Further, they completed two questionnaires which included Voice Handicap Index (VHI-6) and Brief Symptom Inventory (BSI). In total, the study included 47 subjects (28 women, 19 men) between 22 to 84 years, in which 17 patients (36.2%) had functional dysphonia, 14 (29.8%) had spasmodic dysphonia, 11 (23.4%) had vocal fold paralysis, three (6.4%) had vocal fold polyps or nodules, and two (4.3%) had a vocal fold malignancy. Overall, the prevalence of psychiatric illness is 63.6% in vocal fold paralysis, 21.4% and 7.1% for functional dysphonia and spasmodic dysphonia. Out of all these, spasmodic dysphonia had a negative correlation showing that there are not many traits like depression, avoidance etc. While on the contrary, patients with functional dysphonia reported higher scores on BSI, portraying them as being more sensitive, getting hurt. In four patients, anxiety and depression levels were also increased. For vocal fold paralysis, seven patients reported depression and anxiety; their

voice symptoms severity correlated with their feeling of anxiety, irritability, and somatic preoccupation. Thus, for spasmodic dysphonia, the clinical psychopathology was low compared to the other voice problems, which is a finding contrary to the present trend. For functional dysphonia, a moderately higher correlation was found for this particular problem related to being neurotic introvert under stressful conditions. Therefore, giving one notion that functional dysphonia has more to do with psychological aspects than any other psychiatric disorder. Lastly, for vocal fold paralysis, the correlation between the voice and psychological symptoms could be a consequence of the vocal fold mobility dysfunction as there exists no direct mechanism of depression being a causal factor for the voice problem. However, it can hamper the recovery from dysphonia. This study, therefore, highlights the importance of tapping on the relation between both the disorder categories wherein patients having vocal fold paralysis are a risk of psychiatric sequelae. In contrast, functional dysphonia patients might lead to personality vulnerabilities.

2.4 Profession and Voice Disorders

Voice disorders are prevalent in various occupations or professions. Teachers and singers are reported to be adversely affected by the voice issues as compared to other professions like lawyers, hawkers, clergymen etc. There is extensive literature available on the voice and their relation to the profession when we talk about teachers and singers. The above mentioned statements were supported by multiple authors like Houtte et al. (2011) reported that out of 994 teachers and 290 controls, teachers reported more problems (51.24% to 27.4%) out of which few resorted to medical assistance and rest of them had to miss their work. Followed by this, in another review by Pestana et al. (2017) consisting of 11 articles in total reported 46.09% of self-reported dysphonia in singers and they also, mentioned about the variability in terms of the type or class of

professional like they differentiated the categories as students (21.76%) , teachers (55.15%) classical category (40.53%). and non-classical category (46.96%). In another study by Boltezar & Bahar (2014) they came up with a conclusion that almost one third labour depends upon their voice for their work, which is primary reason that they tend to develop voice problems. With 2347 subject including teachers, speech language therapist, priests, nurses, salesmen and physicians the authors reported that nearly 82% of them faced voice problems with teachers being the most prominent category amongst all the classes mentioned above. In a study carried out in Sweden by Fritzell (1996) totally 1212 participants were examined and divided into 26 groups based upon their professions. Majorly, phonasthenia was a common diagnosis given to many groups. Here, also occupational teaching group reported having major issues with voice, followed by health care workers and second to the last being the lawyers. These were amongst the top five groups having multiple diagnosis and more prominent voice issues as compared to other categories.

2.5 Psychological Factors & Profession

Marchant-Haycox & Wilson (1992) used a personality profiler and a checklist for stress symptoms to study various personality traits in the performing artist (33 actors, 26 dancers, 65 musicians and 38 singers). Out of all the four groups, actors marked as extroverts, more expressive, impulsive, in comparison, singers as a mix of characteristics of all the other three groups, specifically, lying between actors and musicians, i.e. between extroversion and introversion. Their findings indicated that the performing artist (including actors, singers and dancers) suffered from performance anxiety. Such results correlated with the previous findings and could be associated with self-selection of the choice of Occupation, traits/qualities required to sustain the profession, and the stress imposed by lifestyles and occupational changes. Further, the

authors' general notion that performing artists vary from the controls in being introverted, emotionally unstable and cautious. Also, all the other artists except the actors complained of shoulder ache and depression based on the stress symptoms checklist results. Thus, from this study, we can conclude that performing artists are discriminable based on personality traits. However, it remains unclear whether the professionals develop these traits as part of their profession, which may or may not be the speciality of their job or probably each of these hypotheses has a role to play when one talks about link between psychological factors and voice disorders.

2.6 Social Factors and Voice disorders

Monti (2016) stated that social aspects such as parental conflicts, family environments, anxiety levels all these factors contribute to the effect on voice. They tried to establish a relationship between attachment, emotions and trauma in singers. Other instances like stage fright, constant judgment, high demand, and pressure other factors could hamper the situation even more. Here, the authors have also, correlated psychological state with cigarette smoking and how it damages the voice; a similar impact was found on the voice when these conflicts affected the singer. The laryngeal nerve is sensitive to emotional changes or distress, thus stating a clear-cut role of emotional aspects when we talk about voice problems. The authors also talk about stage fright, which they term as social phobia resulting in the heart racing due to adrenaline rush, further leading to the dryness in the throat affecting the vocal performance. Therefore, one could conclude that social issues related to occupations tend to affect vocal aspect.

Marchant-Haycox & Wilson (1992) in a similar study assessing psychological as well as social factors stated that the traits such as impulsiveness, depression,

aggression etc., could be because of the unstable job, ill-performing conditions (large crowds, mocking, bullying), increased competition, repetitive practice without much rest, excess travelling etc.

In another study by Nedelcut (2018) on musicians personality and anxiety. Factors such as body weight, anxiety levels, sleeping habits and the appetite of musicians were also studied. There were two categories of subjects one as employed and the other being the unemployed group; a comparison between both the groups were made out of total 580 subjects along with a control group of psychology and chemistry students. The premier two categories were further divided into professionals and students. The results of this survey stated that overall on the run the students tend to eat less when compared to the employed, they had more meals in a day with the family, but holistically, the musicians' groups (students as well as engaged) had terrible eating habits as compared to the controls. Again, the musicians had more sleeping problems compared to their respective controls, wherein the studying musicians had medium to important sleeping issues (like less than 7 hour sleep/day) compared to the employed musician group. A similar trend was seen in the smoking pattern, i.e. the students had this habit more than the employed musicians, but the control group smoked more than the musician groups.

Alvear (2010) commented on an interdisciplinary approach to teachers' voice disorders and the psychosocial aspects of working conditions. A total of 282 teachers from kindergartens and elementary schools were studied as a part of the research article with age range of 23 to 63 & mean as 44 years. Out of this 74.6% were females and 25.4% were males. They came up with an overall picture that linked the vocal symptoms to the psychosocial stressors regarding the multiple models that have come into light in recent years. The work stress has been conceptualized in terms of

psychological demands and the degree of control at work and its conditions. Followed by this, numerous new frameworks were added to the previously mentioned condition: higher demand and loss of control would be solely responsible factors. The demand-control model, which talks about 'social support,' was included (i.e., assistance from fellow colleagues and guidance from the superiors and mentors), which would reduce the adverse effects and aspects at work. Further, two new conditions were added: the effort-reward model (talks about social reciprocity and linked career with the reception of the rewards) and organizational justice (talks about the hierarchy at work and the inter-relationships between the colleagues/employees). Therefore, one can conclude that psychological demands, social supports, control over work, and environmental arrangements and relationships can profoundly influence the teachers' state at work and their voice. They studied two distinguished categories here, i.e., teacher groups with unhealthy voice (UV) and others with a healthy voice (HV), and variable results were obtained with an overall 62.7% of subjects experiencing occupational voice disorders. They administered two scales on the teachers, namely, Teachers' occupational voice profile and the Spanish version of the Copenhagen Psychosocial Questionnaire (ISTAS-21), in which they studied factors such as emotional demands, sensorial demands, control over working time, quality of leadership, social support, etc. On ISTAS-221, the UV had lesser control than HV in 2 conditions (i.e. 'type of tasks assigned' and 'time at work'); this would highlight the extra amount of time required by the UV teachers to cope and achieve their work targets. Also, this will impact their professional skills build-up, which can be correlated to the demand-control model. Lesser compensation at work was noticed at work with the UV group, stating that the social support context decreased. This was also related to the reduced job stability and esteem, which negatively impacted the individuals' health. Thus, here we can conclude

that occupational problems are closely interlinked to psychosocial issues. Many present studies associate stress at the workplace as a major hazard to the workers' health, obviously relating it to enough intensity, frequency, and duration preventing the person from gaining control over the work or situation. Stress has been linked to emotional distress, cognitive disturbances, job dissatisfaction, and behavioral issues and has a role to play in the physiologic body reactions. Voice production involves muscular tension, breath coordination, and neuroendocrine interactions in regular and tense/demanding situations. Therefore, there is an unexplained link between voice maintenance and psychological aspects (i.e., it can be a co-causal, precipitating, or exacerbating factor for the voice disorder). Muscle tension dysphonia was related to high stress and depression, while laryngeal lesions were associated with anxiety. As a consequence of all such factors, psychosomatic effects such as job dissatisfaction, poor health, etc., were also reported. This suggests that voice disorders and psychosocial factors need to be addressed as an occupational risk factors that can exist and interact not only for teachers but also for other such vocal professions.

2.7 Role of stress and anxiety: Occupation Perspective

A similar study by Kenny et al. (2004) explored the relationship between multiple variables like state and trait anxiety, occupational stress, performance anxiety, aspiration and perfectionism in a group of elite chorus singers ($n = 48$) working in the opera company, out of which 32 volunteered to participate. The age range for the same varied from 28 to 61 years with mean age as 41.39 years. The authors presented results taken up from various test materials administered like Occupational stress inventory, Performance anxiety inventory, Frost perfectionism scale, State-trait anxiety and MPA scale. This scale provided information on the singer's perception, personal standards, parental aspirations, stress/related factors, etc. The researchers reported higher

occupational strain, trait and occupational anxiety as compared to the controls. Supporting the hypotheses mentioned above, i.e. coping up/sustaining the profession, requires some personal resources; this study also highlighted a similar trend of using such resources to manage anxiety. Higher scores on the personal resources were related to high scores on anxiety. Again, Marchant-Haycox & Wilson (1992) discussed the work environment; the higher personal strain was due to the working conditions, which further resulted in higher trait anxiety. But authors suggested that anxiety is neither directly associated with the occupational roles nor the work environment. Instead, trait and performance anxiety are associated with the occupational stress emerging as a separate contributor to the quality of life of the elite chorus artists.

In another study by Nedelcut (2018) the body weight, anxiety levels, sleeping habits and the appetite of musicians was studied using two validated questionnaires - the Zung Self-rating Anxiety Scale (SAS – for all the subjects and the Music Performance Anxiety Inventory for Adolescents (MPAI-A–only for the musicians). A total of 580 participants responded to this survey, out of which 162, i.e. 162 (47.79%), were singers. Also, out of the total number of participants, 136 (40.12%) were employed musicians and 203 (59.88%) students. Therefore, the researcher compared the employed group with the unemployed group. They were also compared with the control group, which were chemistry and psychology students. For the trait, anxiety, a pattern of reduction in general and performance anxiety, was reported in line with the maturity levels, which means that the students had more anxiety than the employed personnel. The social factor section covered on the eating, sleeping, and smoking habits of the subjects. Thus, employed musicians had higher body weight, ate more frequently on the run, lesser anxiety, lesser sleep problems, and smoked less than music students.

Therefore, in conclusion experience plays a significant role to help reduce anxiety as one matures.

2.8 Singer's personality and physiology

In a study by Monti (2016) they studied the relationship between attachment, emotions and trauma and its effect on the physiology of the singers. They devised their hypotheses on the foundation that there exists a connection between the mind, i.e. psychological aspects and the voice. Factors like anxiety, attachment, trauma, shame would indeed have an impact on one's voice. One can be very well aware of their mental or emotional state by their voice like anger involved extreme articulatory postures and a louder voice (higher intensity). Therefore, emotions govern the mechanical orientations of phonation. Emotional aspects are related to the voice, so are the traumatic episodes of childhood and even the recent past that could serve as the root cause of the voice problem the person is facing. Anxiety, another domain studied here, could be very well related to physiological mechanisms like higher anxiety levels, leading to irregular & deeper breathing, which would affect the voice. Higher anxiety levels follow this, making singers more prone to benign voice disorders, while lower levels correlate with acoustic measures equivalent to silent pauses. Self-consciousness, i.e. trait about oneself, which is more or less related to shame and guilt, affects the voice. Shame is a feeling being of 'small', reduced, which brings the fear of being exposed. These feelings can directly or indirectly affect the vocal intensity and other perturbation measures. Other factors include guilt, blame which is out of the scope of our study presently. Therefore, voice is the central identity for singers and is prone to get affected by these psychological conflicts. Thus, the authors hypothesized that these factors mentioned above impact the characteristics of voice in singers. The study was carried out in two parts – Study 1 related insecure attachment style, trauma, and

measures of self-consciousness affected the perturbation measures while the Study 2 aimed to replicate study 1 and relate it to vocal characteristics.

Study 1 had 25 participants (14 females, 11 males), while Study 2 had 26 participants between 19 and 33 years. The assessment procedure in Study 1 included ECR-R (Experiences in Close Relationships–Revised) is a 36-item questionnaire designed to assess individual differences in attachment-related and avoidance-related anxiety. Followed by the Singing Voice Handicap Index consists of 36 items on singing voice-related dysfunction and voice analysis using the LingWAVES software while State-Trait Anxiety Inventory-Revised (STAI), a 40-item self-report measure of trait and state anxiety along with TOSCA-3 (Test of Self-Conscious Affect version 3) was used to assess shame proneness were used in Study 2. Results revealed anxious attachment was negatively correlated with maximum intensity but positively correlated with irregularity and jitter. Also, avoidant attachment showed a good correlation with jitter and shimmer. While Study 2 revealed that shame governs these vocal aspects, i.e., self-image is the factor that plays a significant role amongst the other psychological factors affecting the voice. Therefore, although singers go under immense training and practice, these psychological issues can still serve as the technical issues they are having with their voices. Emotional distress can be the root cause of the problems they have been facing during their performances.

2.9 Role of Environmental factors in Teacher's voice

Supporting the previous study, Chowdhury and Dawar (2019) studied the impact of classroom environment determinants on the psychosocial aspects of Occupation related voice disorder in Teachers'. Functional, physical, and emotional domains of VHI were administered, and there were significant cumulative effects of the

domains mentioned above about the total duration of the classes, time of breaks in between classes. Out of the three domains mentioned above, the emotional part had a significant association with the number of classes in a day, total duration of classes, and break duration. Therefore, not loud-speaking but also speaking continuously, lack of voice rest, speaking in a noisy environment would add to occupational voice disorders and impact the psychosocial aspects, specifically on the emotional part. This will lead them to take decisions like early retirement, change in profession, be socially isolated and reserved, and lack intent to communicate. There will be significant changes in their lifestyles.

The use of self-administered questionnaires was also highlighted in the study by Alvear et al., 2010 considering the very nature of the information requested while studying such sensitive aspects, which are specifically related to the individual's work. This way of administration finds its strength to appropriately account for workers' perception of the work environment, which will further give an insight into his occupational role and related health. Also, another standard line can be drawn from the study, and this research is the 'quite satisfactory' or 'excellent' status of the individuals' health at the time administration, which reduce the possibility of the spurious results wherein most of the subjects would complain about their vocal health status and have a negative impact of the psychosocial aspects and work environment. In sum, one can conclude that more than 60% of teachers are affected by voice disorders and impact their psychosocial working conditions.

2.10 Conclusion

Therefore, from the above mentioned review of literature one can conclude a few findings which would validate the present study.

- Out of the four categories considered for this study i.e. singers, teachers, lawyers, housewives; teachers are the most prone to occupational voice disorders followed by singers. While there is a lack of evidence in case of the latter two categories i.e. lawyers and housewives.
- The findings are more relevant to the Indian scenario, thus, it justifies more research studies with respect to the above mentioned population and statement.
- The review indicated that there is no preferred tool used to assess the psychosocial aspects of the subjects.
- Also, both psychological as well as environmental factors can act as causal as well as consequence of the voice disorder.
- Thus, the lack of research with respect to the two categories of the professional voice users, comparatively lesser studies in the Indian context and lack of a uniform tool to assess the psychosocial issues serves as the primary need of this study

Chapter 3

METHOD

This chapter describes the research design, the participants and the procedure of the current study. An overview of research analysis will also be depicted.

3.1. Research Design

The aim of the study was to develop a questionnaire to assess psychosocial issues in PVUs. To assess these psychosocial issues, a cross sectional, descriptive study design was employed. This study was carried out in an online/tele- mode.

3.2. Participants

A total of 20 PVUs (five individuals in each of the four types of PVU's) participated in the study. Out of the 20 participants, 11 participants were females and the rest of them were males. Details (on gender, age, education and experience in the field) of the participants are presented in Table 1.

3.2.1 *Participant's inclusionary criteria*

- a) Aged 30 – 40 years
- b) Male or female PVUs (any level)
- c) Native Kannada speaker (although, can be multilingual)
- d) Minimum 3 years of experience in their respective field
- e) No complaint of vocal health issues during the time of participation
- f) Willing and consent to participate in the study

3.2.2 Sample selection

The participants were recruited through personal contacts and the requests for participation were made through social media since the interviews were administrated online. Interviews were carried out using google meet platform or over telephone. Participants were informed beforehand about the purpose of the study, the nature of questions and the amount of time required for the interview. An oral consent was also taken form the participants. The interview was carried out in English.

3.3. Procedure

3.3.1. Phase I: Preparation of a preliminary questionnaire

A preliminary questionnaire was prepared after a literature search. Three self-administered test materials, namely, General Health Questionnaire five (GHQ) (Shamasunder et al., 1986), International Personality Disorder Examination Screener (IPDE) (Loranger et al, 1997), and The Holmes-Rahe Life Stress Inventory (Holmes & Rahe, 1970) were selected. For content validation, three professionals (one clinical psychologist and two speech language pathologists) rated the questions as “appropriate” or “not appropriate”. The preliminary questionnaire was finalised after the content validation. It had 68 items: GHQ-5 (5 questions), IPDE (20 questions) and The Holmes-Rahe Life Stress Inventory (43 statements).

An e-questionnaire, i.e., a Google form, which included the below mentioned details was prepared:

3.3.1.1 GHQ, IPDE and The Holmes-Rahe Stress Inventory.

a. General Health Questionnaire Five. The General Health Questionnaire (GHQ) designed by Goldberg (1972) is an effective first stage screening tool for the detection of non-psychotic psychiatric illnesses. It is simple, easy to

administer, acceptable and has high validity. A shorter screening tool was used for this study i.e. General Health Questionnaire Five. Especially so because the five questions can be easily integrated into routine clinical enquiry, by the doctor or a health professional. The responses would be recorded on a Likert Scale rating from 1 (Not at all) to 3 (Much more than usual). A score of 2 and above are considered as psychiatrically ill as per the guidelines of GHQ-5.

b. *International Personality Disorder Examination (Screener)*. International Personality Disorder Examination designed by Dr Armand W. Loranger in 1997. Its purpose is to identify those traits and behaviours that are relevant to an assessment of the criteria for personality disorders in the ICD-10 and DSM-IV classification systems. This test checks the personality in nine different types. The screener questionnaire was considered for this study and had 59 questions in total. It is a TRUE or FALSE based screener, wherein the subjects have to choose either of the options. If three or more items from a disorder are positive, the subject should be further interviewed for the possible presence of that disorder. Clinicians and investigators may wish to adopt lower or higher screening standards. For the present study, a score of four or more was used to detect possible personality disorders.

c. *The Holmes-Rahe Life Stress Inventory*. It is a stress inventory given by psychiatrists Thomas Holmes and Richard Rahe in 1967. A list of 43 Life Change unit (LCU), basically 43 stressful life events ranked by the degree of change or upheaval they typically cause in individuals' lives. The subjects are supposed to mark down the point value of each these life events that has happened to them. A total of ≤ 150 is good, suggesting a low level of stress and a low probability of developing a stress-related disorder. If the score is ≥ 300 ,

statistically there is an almost 80% chance of getting ill in the next 2 years. If the score is ≥ 150 to ≥ 299 , the chances are about 50%. At < 150 , ~30% chance of illness. This scale seems to suggest that change in life requires an effort to adapt and then an effort to regain stability.

3.3.1.2 Questions on demographic details questions about the participants name, age, gender, profession, years of experience and education; and

3.3.1.3 Questions to rule out the participants with vocal health issues (e.g., history of cough and cold)

Considering the professional background of the participants, the questionnaire was prepared in English.

3.3.2. Phase II: Administration of the preliminary questionnaire

Participants were interviewed by the researcher either on an online platform (google meet) or over telephone. The interview began with a disclosure of information pertinent to the study and a vouching of informed consent. A general outline of the various sections in the questionnaire is shown in Figure 1.

Responses were analysed for commonalities and a final questionnaire was constructed using the data recorded from the google forms as in Appendix I.

3.3.2. Phase II: Inference from the preliminary questionnaire

Based on the responses recorded and relevant statistical findings, a final questionnaire was prepared wherein questions which were rated as “0 (Not at all)”, or answered as “No” or situations not reported by any of the participants (in The Holmes-Rahe Life Stress Inventory) were removed from the preliminary questionnaire.

Thus, the questionnaire would be in 4 sections: (a) Demographic Details (b) General Health Questionnaire (c) International Personality Disorder Examination, and

(d) The Holmes-Rahe Life Stress Inventory. The number of questions included in each section, except for section (a), was based on the statistical findings. The final questionnaire would be made as a self-administration form considering the sensitive nature of the questions.

3.4. Statistical Analysis

Data were analyzed using SPSS (Statistical Package for Social Sciences) software version 20. Descriptive analysis including frequency, percentage and mean was carried out for the socio-demographic variables. Given the small sample size, variables were analyzed using nonparametric tests. These included Kruskal-Wallis test for group differences for the four types of PVU's. Further, correlation between GHQ-5, IPDE and The Holmes-Rahe Life Stress Inventory scores was carried out using Spearman's correlation coefficient. The level of statistical significance was kept at $P < 0.05$ for all these tests.

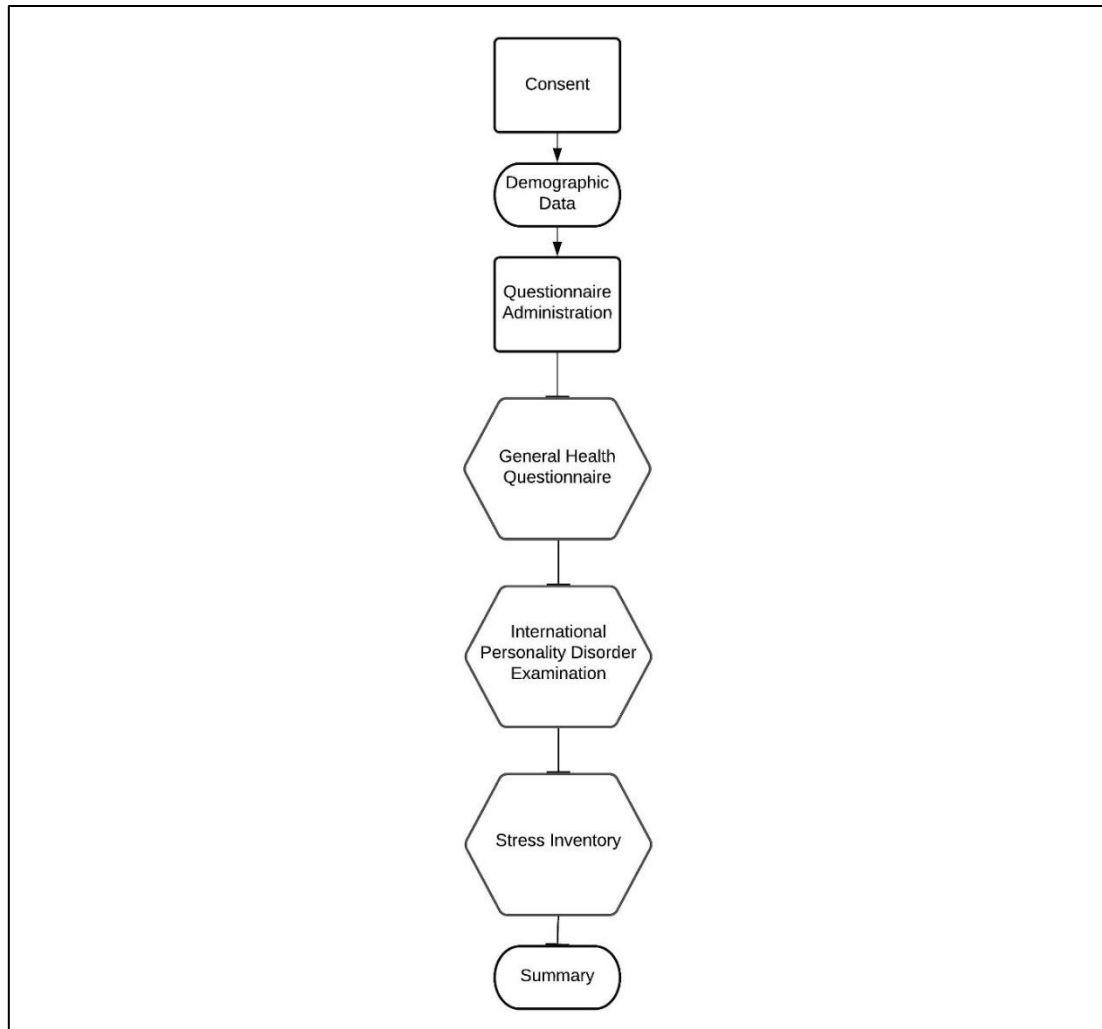
Table 1*Demographic details for the Professional Voice Users.*

Participant	Profession	Age	Sex	Education	Experience
T11	Singer	40	Female	Post-graduation	18
T12	Singer	37	Female	Post-graduation	30
T13	Singer	40	Male	Post-graduation	32
T14	Singer	30	Female	Graduation	8
T15	Singer	37	Female	Post-graduation	16
T21	Teacher	39	Male	Graduation	15
T22	Teacher	34	Female	Post-graduation	9
T23	Teacher	40	Female	Post-graduation	19
T24	Teacher	30	Female	Post-graduation	4
T25	Teacher	32	Male	Post-graduation	8
T31	Lawyer	36	Male	Graduation	6
T32	Lawyer	39	Male	Graduation	11
T33	Lawyer	36	Male	Post-graduation	10
T34	Lawyer	40	Male	Post-graduation	14
T35	Lawyer	38	Male	Post-graduation	10
T41	Housewife	31	Female	Post-graduation	-
T42	Housewife	32	Female	Graduation	-
T43	Housewife	35	Female	Graduation	-
T44	Housewife	35	Female	Post-graduation	-
T45	Housewife	40	Female	Graduation	-

Note. Empty cells are marked using “-” which means that no data were reported.

Figure 1

Flowchart depicting the questionnaire format.



Chapter 4

RESULTS

The present study aimed at developing a questionnaire for the assessment of psychosocial issues in PVUs, after compiling the findings from the preliminary questionnaire. These professionals were between the 30 and 40 years of age and had a minimum experience of 3 years.

4.1 Professional voice user category with age and experience

Table 2

Details for the study - Professional Voice Users

PVU (Total N = 20)	n	Age M(SD)	Experience (Range)	Experience M(SD)
Singers	5	36.80(4.08)	8-32	20.80(10.05)
Teachers	5	35.00(4.35)	4-15	11.00(5.95)
Lawyers	5	37.80(1.78)	6-14	10.20(2.86)
Housewives	5	34.60(3.50)	-	-
Total	20	36.05(3.54)	4-32	14.00

Note. Empty cells are marked using “-” which means that no data were reported.

The preliminary questionnaire was administered on 20 participants. Table 2 shows mean and standard deviation values for age and professional experience of the four types of PVU's. Although, all the participants were aged between 30 years and 40 years, the mean age (M=36.05,SD = 3.54) of the lawyers was slightly higher than the others. However, the lawyers reported fewer years of experience than singers and teachers, with a mean score of M=10.20 (SD = 2.86). The singers were the maximally trained PVUs.

4.2 Development of preliminary questionnaire

According to the available literature, there was no tool specifically used to assess the psychosocial issues in PVUs. No questionnaire was available to assess such factors

in Indian context too. Therefore, a preliminary questionnaire was developed to assess the psychosocial issues in PVUs. In these questions, the participants were to report their responses relating to their routine use of voice both for regular purpose and for professional purpose. The questions were related to the general well-being, personality and stress experienced by the voice users. The General Health Questionnaire Five (Shamasunder et al., 1986b), screener checklist of the International Personality Disorder Examination (Loranger et al, 1997) and the Holmes-Rahe Life Stress Inventory (Holmes & Rahe, 1970) were selected after the review of literature.

To check the relevance and comprehensibility of the questions, the preliminary questionnaire was validated by three professionals (two Speech Language Pathologists and one Clinical Psychologist). Relevance of each question was determined after considering the existing literature. The literature review had indicated a higher prevalence of anxious, dependent and rigid personality traits. Therefore, items related to three personality traits (namely Anankastic, Anxious and Dependent) were taken into consideration from the screener checklist of the IPDE. The Holmes-Rahe Life Stress Inventory and the GHQ-5 were included without any modifications. Thus, the preliminary questionnaire had 68 items for assessing well-being, stress, and personality of the PVUs.

4.3 Tests of normality

To check if the data showed a deviation from normality, the data was subjected to Shapiro-Wilson test for normality. The results revealed that the data is not following the normal distribution ($p < 0.05$) with respect to age, gender and group also. Hence, non – parametric tests were performed for all the statistical analysis.

4.4 Comparison data: Difference between means and standard deviations of each group

Table 3

Correlation of test materials across Professional Voice Users

PVU (N = 20)	GHQ M(SD)	IPDE			Stress Inventory	
		Anakastic M(SD)	Anxious M(SD)	Dependent M(SD)	Total Stress M(SD)	Number of events M(SD)
Singers (n=5)	2.60(0.89)	4.00(2.54)	4.60(0.54)	4.00(1.58)	109.20(115.14)	3.00(2.23)
Teachers (n=5)	2.80(1.30)	3.20(1.78)	4.00(1.22)	3.00(1.87)	148.80(109.50)	4.00(2.12)
Lawyers (n=5)	3.80(0.83)	3.40(1.51)	3.60(0.89)	4.20(0.83)	106.00(113.35)	3.60(3.50)
Housewives (n=5)	4.20(1.30)	2.20(1.78)	4.40(0.89)	3.40(0.89)	193.80(119.82)	6.40(3.64)
Total	3.35(1.22)	3.20(1.90)	4.15(0.93)	3.65(1.34)	139.45(111.26)	4.25(3.02)

One of the aims of the study was to compare the scores obtained by the four types of PVUs on different factors of the preliminary questionnaire. The mean and standard deviation values are depicted in table 3.

The mean GHQ score of the whole sample was $M=3.47$ ($SD = 1.63$). A GHQ-5 cut off score of 2 and above indicates a probable presence of a psychological disorder. GHQ scores of the four types of PVUs were higher than the cut off score. Lawyers had highest GHQ score. Housewives reported greater distress than teachers, who in turn reported greater distress than the singers.

Similarly, a cut off score of 4 and above is used to detect personality disorders in the IPDE screener. Singers reported scores of $M=4.00$ ($SD = 2.54$), $M=4.60$ ($SD = 0.54$), and $M=4.00$ ($SD = 1.58$) which were higher than the cut off score for Anakastic, Anxious and Dependent personality types, respectively. While teachers reported a

clinically elevated mean score on anxious personality type ($M = 4.00$, $SD = 1.22$), lawyers reported a mean score of $M=4.20$ ($SD = 1.22$) in the dependent personality type. Additionally, housewives reported higher scores on anxious personality type ($M = 4.40$, $SD = 0.89$).

When the stress level of the four types of PVUs were assessed using The Holmes-Rahe Life Stress Inventory, housewives displayed maximum stress level with a mean score of $M=193.80$ ($SD = 119.82$). A score of 150 or less suggests low level of stress (Holmes & Rahe, 1970). Teachers ($M = 148.80$; $SD = 109.50$) reported higher stress levels than singers ($M = 109.20$; $SD = 115.14$), who in turn reported higher stress than lawyers ($M = 106$; $SD = 113.35$). However, these three types of PVUs scored less than 150, which suggests lower levels of stress.

The results of present study suggest that the preliminary questionnaire was a useful tool in identifying clinically significant psychosocial factors (general well-being, stress, and personality), which may be the reason for vocal complaints either in a direct or an indirect way.

4.5 Relationship between general well-being, stress, and personality types

To determine the relationship between general well-being, stress, and personality types among the four types of PVUs, a Spearman's rank-order (r_s) correlation was administered. The results are shown in table 4.

Table 4*Correlation of test materials across Professional Voice Users*

Singers						
	GHQ	IPDE(a)	IPDE(b)	IPDE(c)	Stress	Events
GHQ	1.000	0.000	0.408	-0.354	-.894*	-.894*
IPDE(a)	-0.344	1.000	0.889*	0.718	-0.051	-0.051
IPDE(b)	0.000	0.889*	1.000	0.577	-0.289	-0.289
IPDE(c)	-0.783	0.718	0.577	1.000	0.600	0.600
Stress	-0.894*	-0.051	-0.289	0.600	1.000	1.000**
Events	-0.894*	-0.051	-0.289	0.600	1.000**	1.000
Teachers						
GHQ	1.000	-0.344	-0.460	0.289	0.112	0.000
IPDE(a)	0.000	1.000	0.000	0.574	-0.447	-0.459
IPDE(b)	-0.295	0.000	1.000	-0.406	-0.738	-0.676
IPDE(c)	0.459	0.574	-0.406	1.000	-0.308	-0.395
Stress	0.112	-0.447	-0.738	-0.308	1.000	0.975**
Events	0.000	-0.459	-0.676	-0.395	0.975**	1.000
Lawyers						
GHQ	1.000	0.649	0.631	-0.108	0.433	0.250
IPDE(a)	0.583	1.000	-0.177	-0.250	0.811	0.750
IPDE(b)	0.295	-0.177	1.000	0.059	-0.516	-0.530
IPDE(c)	0.472	-0.250	0.059	1.000	0.108	0.000
Stress	0.433	0.811	-0.516	0.108	1.000	0.973**
Events	0.250	0.750	-0.530	0.000	0.973**	1.000
Housewives						
GHQ	1.000	0.000	0.287	-0.287	-0.224	-0.057
IPDE(a)	-0.057	1.000	-0.344	0.688	-0.154	-0.158
IPDE(b)	0.125	-0.344	1.000	0.125	-0.671	-0.574
IPDE(c)	0.125	0.688	0.125	1.000	-0.783	-0.803
Stress	-0.224	-0.154	-0.671	-0.783	1.000	.975**
Events	-0.057	-0.158	-0.574	-0.803	0.975**	1.000

Note. **. Correlation is significant at the 0.01 level (2-tailed). IPDE(a) = Anakastic personality,

IPDE(b) = Anxious personality, IPDE(c) = Dependent personality. Stress and events refers to degree of stress and total number of events experienced respectively.

In The Holmes-Rahe Life Stress Inventory, there was a strong positive correlation between the number of stressful events and the total- score of life stress indicator for singers ($r_s = 1$, $p < 0.01$), teachers ($r_s = 0.975$, $p < 0.01$), lawyers ($r_s = 0.973$,

$p < 0.01$) and housewives ($r_s = 0.975$, $p < 0.01$). This indicates the more the numbers of the number of stressful events, the more the total- score of life stress indicator will be.

No correlation between general well-being, stress, and personality types among the four types of PVUs was found except for a strong positive correlation ($r_s = 0.88$, $p < 0.05$) between anankastic personality traits and anxious personality traits and strong negative correlation ($r_s = 0.894$, $p < 0.05$) between well-being and stress among singers. This indicated coexistence of both these personality traits in singers.

4.6 Development of the final questionnaire

The final questionnaire was prepared based on the findings from 68 questions included in the preliminary questionnaire. Those questions which were not reported by any of the participants were not considered for the final questionnaire. In other words, those questions, reported by at least one participant, were included in the final questionnaire. The details of the same have been mentioned below.

In GHQ-5, varied responses were recorded for each of the questions, thus, all the questions were included for the questionnaire. Question 3 (GHQ3 - Have you recently been able to enjoy normal day to day activities and question 5 (GHQ5 - Have you recently been feeling reasonably happy, all things considered?) were reported with highest mean scores of $M = 2.45$ ($SD = 0.82$) and $M = 2.3$ ($SD = 0.65$) respectively. Other findings, in terms of the categories of PVUs, suggested that housewives reported a wider range of responses while singers did not report any responses on the first question.

Similarly, in IPDE, all the questions were reported by at least one participant and were included in the final questionnaire. Question 17 (IPDE17 -I usually feel uncomfortable or helpless when I'm alone) was the most frequently reported question

with a mean score of $M=0.9$ ($SD = 0.30$), while question 13 (IPDE13 – I work so hard that I don't have time left for anything else.) was the least reported question with a mean score of $M=0.45$ ($SD = 0.51$).

However, in The Holmes-Rahe Life Stress Inventory, there were many statements eliminated from the original list of 43 as none of the participants reported any issues in those particular situations. Totally, 12 such statements were excluded from the total tally. Most often reported statements were 5, 15, and 38 (i.e. Death of a close family member, major business adjustment, and major change in sleeping habits respectively) with mean score of $M=0.35$ ($SD = 0.48$). Some of the less often reported statements included Death of spouse, divorce, and son or daughter leaving home (marriage, college, joining military) etc. Thus, 31 statements were considered for the final questionnaire.

Therefore, the final questionnaire would include five questions from GHQ-5, 20 questions from IPDE (screener) and 31 statements from The Holmes and Rahe Life Stress Inventory, giving the psychosocial questionnaire a total of 56 self-administered questions.

This questionnaire can be filled in not more than 15 minutes. The final questionnaire is made available in the Appendix.

Overall, the results suggested that PVUs are at high risk of vocal issues with psychosocial factors being the underlying cause of the problem. While the housewives were the maximally stressed group, the singer's anaxastic and anxious personality traits could have had an effect on their well-being. Therefore, psychosocial factors must be monitored from both the professional and the personal perspectives, which, in turn, could enhance the performance and viability of the PVU. This questionnaire would also

provide a streamlined approach to assess such sensitive factors in people having vocal issues from the professional front.

Chapter 5

DISCUSSION

The study revealed interesting results with regard to general well-being, personality and stress of PVUs. Although, many of these results may not be statistically significant, these results hold immense clinical importance in terms of assessment and management. This will be discussed as under:

5.1 1 **Psychosocial Factors**

- Introduction
- Assessing Psychosocial Issues
- Link between personality, stress and anxiety

5.1 2 **Types of PVUs**

- Number of subjects
- Variability in responses
- Categorical Differences in Professional Voice Users

5.1 3 **Development of Questionnaire**

- Self-Administered questionnaire and its sequence of administration
- General Health Questionnaire
- International Personality Disorder Examination
- The Holmes & Rahe Life Stress Inventory
- Correlations between domains
- Male-Female Comparison

5.1 4 **Limitations**

5.1 5 **Future Research**

5.1 1 Psychosocial Factors

a. Introduction

The results of this study complemented and extended support to some of the existing literature that links psychosocial aspects and voice pathology. Although, most of the previous studies were on psychosocial issues in Functional Voice Disorder (FVD), the present study was on psychosocial issues in asymptomatic Professional Voice Users (PVUs). Previous investigations have identified many risk variables which primarily include personality, stress, anxiety, and depression for the development and/or persistence of multiple voice pathologies (Mirza et al., 2003a). Therefore, our goal was to establish any coexistence between psychosocial issues and voice problems, and come up with a self-administration questionnaire to assess those issues.

Kirmayer et al. (2004) suggested that there are cultural and socio-somatic explanations linking problems in family and community with bodily distress. Patients would acknowledge that certain social conditions or events triggering stress and emotions have an effect on their physical condition. The authors also highlighted the lack of assessments in this aspect or rather the lack of provision of psychological explanations for the medically unexplained symptoms could hamper the patient's condition. Basically, this lack of understanding about psycho-socio-somatic explanations could lead to attrition of patients i.e. they might reject the treatment or referral due to stigma. Therefore, the authors proposed symptom-focused strategies of behavioural medicine to tap on the psychosocial aspects that contribute to pathology.

b. Assessing Psychosocial issues

Deary et al. (2010) reported that many patients with FVD tend to seek etiology of their voice problem in the absence of any organic pathology. Providing them a valid

reason (linking their voice disorder to a stress-related or psychological problem) could put them into a better mental state to resolve or learn how to deal with their problem. For example, Baker (2010) found that the major stressful events in women with FVD were not major events, rather those with unsettling changes to family, or work situations or problems at work or problems with close partners. This was further supported by the Conflict Over Speaking Out (COSO) situations (House & Andrews, 1988) where a person, being in a position which has stronger commitments, says something under certain pressure to just cope up with those commitments which could eventually make the matter worse. Such situations tend to necessitate the assessment of psychosocial issues in PVUs (such as, singers, teachers, or lawyers), who face similar situations.

Patients with FVD are more prone to mood disorders such as anxiety and depression (Roy & Bless, 2000 ;Roy et al., 1997).

Many other studies also talk about possible relationship between stressful life events and psychological correlates, however, general notion was that these complex processes might be inter-related. It was proposed that any complex interaction between these risk factors could lead to misplace or misuse of voice (Baker, 2010). There could be instances wherein persons may not have a voluntary control over their voice. These stressful life events might be related to traumatic events, ongoing domestic violence or work place bullying etc. There exists a strong association between psychosocial factors and the onset of voice disorder as well as its due course (Baker, 2008). Not only a patient's physical voice but also the metaphorical voice should be considered.

There is evidence about a connection between profession and dysphonia (Simberg et al., 2009). There have been several studies involving voice-demanding occupational groups and control groups (e.g., Roy et al., 2004 ;Sala et al., 2001). These

studies concluded that voice problems are multifactorial, and multiple environmental factors add to the vocal load.

c. Link between personality, stress and anxiety

There are numerous studies that link stress, anxiety and personality traits. Mirza et al. (2003a) concluded that dysphoria, anxiety, irritability were directly proportional to the severity of the voice problems. They found patients that with vocal fold paralysis had high rates of depression mixed with anxiety. Kenny et al. (2004) suggested that a complex relationship exists between trait anxiety, occupational stress and performance anxiety in opera chorus artists. Further, Kirmayer et al. (2004) linked stress on bodily functioning and social conditions, without any psychological mediation, to affect a person. But, a direct influence of social conditions on the physiological aspects without any psychological explanation is not acceptable (Kirmayer et al., 2004).

Thus, these relationships between stress, anxiety and personality traits as well as the possibility of these being major risk factors for vocal problems in PVUs serves the purpose for a dedicated questionnaire.

5.1 2 Types of Professional Voice Users

a. Number of subjects

Amid pandemic, a smaller sample size was taken for the study. The results gave an impression that the psychosocial issues are clinically (not statistically) significant. Also, the sample was not gender-balanced. While four out of five (80%) singers were females, all five (100%) lawyers were males. The significance here is mentioned with respect to the PVUs eyeing their voice demanding occupations. In a study conducted in Slovenia about voice disorders in different occupations with vocal load involving a total of 2347 subjects (599 men, 1748 women) stated that greater than 82% of all the subjects

had voice problems at sometime during their career (Boltezar & Bahar, 2014b). Although, there were many etiologies listed as cause of these disorders, the voice problems due to work and course of its deterioration due to its prolong voice usage were mentioned specifically.

b. Variability of Responses

Overall, results are indicative of the importance of assessing psychosocial issues in PVUs. Although, in a study by Mirza et al. (2003a) measuring psychosocial aspects using BSI in spasmodic dysphonia patients, all except one patient were psychologically well adjusted and with family support could face their vocal pathologies. They also concluded that there exists no significant causal relationship between voice and psychiatric symptoms due to absence of clinically meaningful correlations which is contrary to the findings of this study. There were studies supporting the present findings of the PVUs having certain specific personality traits. For example, these professionals tend to fall into the categories of perfectionism restricting them from engaging in enjoyable activities in turn leading to stress and anxiety (Kenny et al., 2004). Further, in patients with Functional Dysphonia, there was a moderate level of psychiatric illness found with higher rate of psychopathology. Mistrust and estrangement are the certain types of symptoms one would expect to see in a neurotic introvert under stressful conditions (Mirza et al., 2003a). Stress exhibited by singers and musicians could be related to the competitive nature of their professions. Working at unsocial hours (also, usually long hours), having a geographically moving job, eventually leads them to have little time to relax. These factors along with scrutiny from critics and audiences add on to their stress. Therefore, there is an overall effect on their general well-being. Because of these conditions singers are constantly bothered about contracting laryngitis or vocal nodules which might affect their career (Marchant-Haycox & Wilson, 1992). Life

events and coping up strategies also play a vital role when a voice assessment is being done for a PVU as due to their work schedules these artists get lesser family time which is directly indicative for solitude, so as to cope up better with the multiple stress factors (Mirza et al., 2003a). Kenny et al. (2004) stated concerns about the physical environment related issues like level of dust, noise, temperature changes as well as erratic work schedules leading to score highest on role insufficiency and role overload affecting voice as the primary factor. He also gave a possible explanation that living and working in environment of constant social evaluative threat may heighten musician's baseline anxiety. Mirza et al. (2003a) suggested to include a psychiatric investigation, support and treatment as a routine for voice assessment to identify patients with psychopathology. Although, a detailed psychological evaluation on patients with primary voice complaints is not feasible rather, such psychosocial screening questionnaires could help one narrow down on patients for referral of detailed evaluation. A conclusion can be drawn from this that due to complex interaction between voice and psychiatry an interdisciplinary approach by Speech-Language/Voice Pathologists, Psychiatrists, and Psychologists is ideal. Kirmayer et al. (2004) put forth a relevant reason to assess such factors because there are certain times when the clinician and patients do not settle on a mutually acceptable account. There might be some inconsistency or incoherence in patient's narrative about his problem, might due to any psychological defensiveness, unspeakable predicaments or intense distress scenarios. Therefore, it is necessary to find the root cause of the problem.

c. Categorical Differences in Professional Voice Users

Housewives scored more on the stressful events which tends to suggest that the men although exposed to greater stressful situations tend to cope up with it better as compared to their female counterpart (Cupido, 2017). In a study by Baker, (2008b) the

females with FVD had higher levels of anger, anxiety and depression. Also, less social support, insecure attachment styles could be an indication of facing more stress which could be the cause of the vocal issues. Followed by this household chores also involves responsibilities such as comforting family environment, looking after the children, sufficing family needs and requirement, but the only difference between this job and others is that housewives are not paid (Moen & Yu, 2000). This is also supported by studies from Turkey and Iran where employed women reported a better quality of life than non-employed (Saraç et al., 2007 ;Saravi et al., 2012). Therefore, one can clearly conclude that women are seen more the housework perspective rather than employment. Further, the authors highlighted the difference in the scores were more of psychological (role emotional, mentality and vitality) rather than physical health. Clearly, stating a better psychological health for employed health than housewives but alongside all the above findings the reason for low physical functioning in working women was related to occupational stress (Saravi et al., 2012). Therefore, this extensive research literature tells that women have multiple roles: housewife, parent, worker, partner and caregiver to elders. Also, there were contrary findings from the cross-national data from 28 countries showing that housewives were slightly happier than wives at work -full time (Treas et al., 2011).

Singers displayed multiple personality traits with an equivalent mean score in all three categories considered for this study. Discriminable characteristics can be seen within the singer category itself maybe based upon the type of singing, practise, years of experience, education and training etc. There is a debate on how personality influence the artist's work i.e. (a) developing their speciality in performing arts because of personality (b) survival in the profession because of their personality, or (c) their profession shapes their personality (Mirza et al., 2003a). Therefore, each of these

hypotheses are true in their own ways. Cameron et al. (2014b) stated that singers tended to be most extraverted and neurotic when compared to other musicians. But extraversion is not the only trait that defines them, rather they have a huge baggage of emotional instability and interpersonal difficulty as well. Thus, singers tend to have a mixed bag of traits with anxiety and neurotic types taking the front.

For singers and musicians, it is reasonable to suppose that highly competitive nature of their professions put them at risk of facing greater stressful situations. Especially, they are constantly worried about their vocal health. This constant worry directly/indirectly affects their career. Such scenarios necessitate a psychosocial assessment, if they report any vocal problems.

Lawyers are found to suffer from multiple mental symptoms like depression, anxiety, obsessive compulsive disorder and other issues. Every five lawyers require help, two have psychological issues, one suffers from anxiety and two have both the problems (*Perfectionism, 'Psychic Battering' among Reasons...* - Google Scholar, n.d.). Source of stress have been linked to the nature of this profession (Gupta et al., 2019). Poor sleeping habits have been reported as the primary reason for their medical conditions like obesity etc. (Steptoe et al., 2002). Substance use and improper habits have been associated with this profession due to the kind of work they are supposed to deliver. Lawyers tend to have higher scores in job control, psychological demands and effort, and high prevalence of self-perceived work stress. Although, there exists a difference between litigious versus non-litigious lawyers, former having higher decision making authority and good social support at workplace, also, higher work & client related burnout. These could be related with higher psychological demands, effort, and effort-reward ratio (Tsai et al., 2009). Drawing conclusions from the above study, the results of this study state that Lawyers tend to have a dependant personality

which could be similar to the working of non-litigious lawyers. Most of the subjects here are between 30-40 which states that they are currently under the growing stage of their careers which puts them at a senior lawyers stake. Although, in another study lawyers and physicians have been reported to have high rates of dysthymic temperament and obsessive compulsive traits (Akiskal et al., 2005). Considering, the nature of work and the voice usage put lawyers at risk of musculoskeletal disorders of which vocal aspect is a major domain clearly indicating a thorough exam of psychosocio-vocal aspects.

5.1 3 Development of Questionnaire

a. Self-Administered questionnaire and its sequence of administration

A self-administered questionnaire, rather than a clinician-administered questionnaire, was deemed appropriate because of the involvement of two distinct professionals; a Speech Language Pathologist and a Psychologist. The availability of different professionals is more likely possible in multidisciplinary large organizations, but may not be feasible for voice assessments that are carried out in smaller set-ups. In addition to that, many items in the questionnaire are extremely personal and sensitive in nature and, therefore, the patient may become defensive or feel uncomfortable to respond if the questionnaire is administered over an interview. Self-administered questionnaires are found to be the best mode to tap onto aspects that are related to an individual's work, work environment, his/her role and his/her health status (Alvear et al., 2010). To elicit the exact and appropriate issues that the patient is facing, a self-administered pattern is more preferable, as, even though the patient's narrative about his illness is incoherent or inconsistent, these tests will give the clinician details about the person's nature and the cause of his/her problem (Mirza et al., 2003a).

The sequence of administration suggests a progression from mild factors to severe factors, which, in other words means, from less sensitive to more sensitive aspects. The sequence of questions used in this study correlated with, for example, the findings from Voice Symptom Scale (VoiSS) - a scale used for scaling voice symptoms. At the mild end of the problem, people tend to report voice symptoms, further, the practical consequence of the problem and at the last, the emotional and social aspects of the problem (Deary et al., 2010). The self-administered questionnaire developed in this study initially elicits voice symptoms, followed by general health, then, personality and finally, stressful life events. Therefore, it successfully measures the patient's perspective on voice problem, and it goes on to establish an association between voice impairments and psychosocial issues.

b. General Health Questionnaire

General Health Questionnaire (GHQ) is a measure of current mental health and has been widely used in multiple settings. In this study a shorter version i.e. GHQ-5 was used, so as to have a restricted number of questions and shorter evaluation time in final psychosocial questionnaire (Shamasunder et al., 1986b). It is a tool for measuring minor psychological distress and not a tool for specific diagnosis. Here, it would be specifically helpful as it is for the PVUs. Lawyers reported to have the highest mean amongst the PVUs followed by housewives, teachers and singers in order. Therefore, from Professional Voice User's view, in a study by Anwar et al. (2013) this tool turned out to be reliable and valid for assessing the mental health status in Pakistani teachers. While on the contrary Deary et al. (1997) using General Health Questionnaire along with Eysenck Personality Questionnaire found no significant difference in the personality traits of the dysphonic patients (both organic and functional) although, an increased level of psychological distress was reported in both the voice-disordered groups. They

gave a conclusion that it is impossible to identify the appropriate cause of the problem based upon the laryngeal and phonatory characteristics when there are high possibilities of predisposition of psychological distress factors (Roy & Bless, 2000). The primary reason to tap on general well-being is the significant low scores on the general health status by the patient with dysphonia using the SF-36 overall reporting problems such as body pain, issues with physical role and social functioning (Wilson et al., 2002).

c. International Personality Disorder Examination

It is well known that different personality traits predispose to a certain disorders, influence its symptoms and course and in turn be affected by the experience. (Holroyd & Coyne, 1987). For example, Henningsen et al. (2003) reported that patients with functional syndromes are significantly more depressed and anxious than the healthy controls. Roy and Bless (2000) stated that there can be no voice problems without an underlying psychological issue. Such findings necessitate the usage of a personality questionnaire, when tapping the psychosocial aspects. International Personality Disorder Examination was used to screen three personality traits (Anakastic, Anxious and Dependant).

Singers reported anakastic, anxious and dependent personality characteristics. While teachers and housewives were more anxious, lawyers showed dependant personality characteristics. These findings are in line with the previous studies that showed that patients with vocal nodules tended to be more aggressive and extravert/talkative (Roy and Bless, 2000) had elevated anxiety, emotional reactivity and maladjustment (Yano et al., 1982). Similarly, patients with spasmodic dysphonia reported elevated levels of depression, anxiety and somatic complaints (Cannito, 1991).

Patients with medically unexplained symptoms reported depression and anxiety more frequently (Henningsen et al., 2003).

The findings of this study explain why singers, with clinically normal voice, report problems with their voice while performing or practising. A clear pointer is towards an amplification of the bodily sensations due to anakastic personality characteristics, anxiety and depression.

Roy and Bless (2000) made an attempt to link personality and vocal vulnerability by giving two hypothesis (1) predisposition of factors to develop the voice problem or to indirectly modify the course or expression of the problem, (2) referred to as disability scar hypothesis, that is experience with disorder/illness causes personality change. This may lead to either residual unsolved symptoms of the disorder or a state of adaptation. Any kind of residual symptoms or even adaptation could be a major risk factor for the careers of the Professional Voice User.

Therefore, this clearly indicates the link between personality and voice symptoms and IPDE serves as the perfect tool to identify traits and behaviours that are relevant to the assessment being carried out. It tends to provide the examiner with a clinical as well as historical picture of the client that could directly or indirectly enhance the assessment and the intervention for the problem.

d. The Holmes-Rahe Life Stress Inventory

There exists a direct relationship between number of stressful life events and vocal vulnerability (Deary & Miller, 2011). Baker, 2010 stated that there is an increased frequency history of life events prior to the onset of functional voice disorder. House and Andrew concept of precipitating events explained these events in relation with ‘concern over speaking out’ (COSO) and ‘powerlessness within the system’. In terms

of coping strategies, Baker stated the FVD patients to have anxious coping. In a study by of Cognitive Behavioural Therapy for FVD 50% were professional voice users (Deary, as cited in Deary et al., 2011). Followed by this in a 5 year retrospective study of 882 mixed dysphonia presentations 41% were professional voice users, clearly stating that PVU are at risk of voice problems (Van Houtte et al., 2011a). Further, Kenny et al. (2004) stated concerns about issues related to physical environment such level of dust, noise and inappropriate temperature in the working environment as well as the erratic work schedules. Therefore, this suggested a complex relationship between trait anxiety, stress and performance anxiety for operatic chorus artists. Followed by thus, Kirmayer et al. (2004) provided impact of stress on bodily functioning, and gave cultural explanation linking the social events with illness. Baker (2010) highlighted the role of life events in females having FVD with instances such as death of a spouse, giving birth to a severely handicapped child etc. Many females reported strained relationships where they could not leave due to all sorts of reasons, most of which were often at work.

Therefore, The Holmes-Rahe Life Stress Inventory would be a useful tool to assess the impact of life events and provide weight to each those findings indicating higher score tending to have higher distress.

e. Correlation between the domains

Although, correlation between domains considered in this study has not been run but there are studies that support the notion of stress being related to certain personality traits In turn affecting the general well-being or on broader aspect the quality of life. In a research study establishing correlation between psychiatry and voice patients with vocal fold paralysis had high rates of depression mixed with anxiety. The

levels of dysphoria, irritability, anxiety and somatic preoccupation were directly proportional to the severity of voice symptoms (Mirza et al., 2003a). On contrary Kenny et al. (2004) suggested findings from his study that occupational stressors are different and separate from performance anxiety and need to address separately. Therefore, he highlighted that both should be treated separately focusing on reducing performance anxiety rather than occupational stressors. From this study, one can withdraw conclusion that there is further need of investigation to know about the relationship between the personality traits, stress factors and general well-being.

f. Males - Females Comparison

This finding was checked although not highlighted in the results due to lack of appropriate sampling. It was found that most of the problems reported in this questionnaire were by the females when compared to the males. Specifically, the Stress Inventory displayed higher scores in housewives, followed by higher scores in GHQ too. But IPDE showed a distributed trend of personality traits between both the genders. There were multiple reasons quoted for this male-female discrepancy in the literature- poor vocal technique (clavicular breathing), over-committed but relatively powerless in social scenarios (House and Andrews, 1988). Corroborating the results of previous research (e.g., Coyle et al., 2001 ; Roy et al., 2004), female participants in our study reported a significantly higher level of vocal symptoms than male participants.

Also, in a study by Cupido (2017) on opera singers the authors stated that males were able to better cope up with the stress as compared to the females and they had a low or zero impact on their quality of life could be an indicative of more issues being reported by the females. Along with this they reported that females reported moderate

to high level of work-related stress. This is suggestive of an appropriate assessment and intervention specifically for female professional voice users.

Chapter 6

SUMMARY AND CONCLUSION

The present study was conducted to develop a questionnaire to assess psychosocial issues in Professional Voice Users. Four distinct categories of Professional Voice Users were considered namely, Singers, Teachers, Lawyers and Housewives in the order of level of voice usage. This study was done in two phases. In Phase I, a preliminary questionnaire was developed after validation from three professionals. Three test materials, namely, General Health Questionnaire, International Personality Examination Disorder and The Holmes-Rahe Life Stress Inventory were considered for the validation. This was uploaded on a google form with questions under the same three domains (General well-being, Personality and Stress). An interview was done with twenty Professional Voice Users (5 in each category) and the responses were recorded. The recorded data obtained were subjected to quantitative analysis. Spearman's (ρ) correlation was used to correlate the data. In the Phase II, a final questionnaire was developed after reducing the questions for which no responses were recorded. Thereafter, a final questionnaire was made with 5 questions from General Health Questionnaire five, 20 questions from International Personality Examination Disorder (screener) and 31 statements from The Holmes & Rahe Life Stress Inventory, giving the psychosocial questionnaire a total of 56 self-administered questions which could be filled in not more than 15 minutes.

Other findings from this study revealed a positive correlation between the number of stressful events and the amount of stress experienced by a person. Further, there was another correlation between the anakastic and anxious personality traits for the category of singers. Some prominent findings from the study were (a) housewives

were reported to be maximally stressed, (b) mixed personality traits displayed by the singers, and (c) a dependant personality trait for the lawyers.

Overall the results showed that Professional Voice Users are at high risk of vocal issues with psychosocial issues being the reason or the underlying cause of the problem. Therefore, this self-administered questionnaire would provide a streamlined approach to assess such sensitive factors in people having vocal issues from the professional front.

6.1 Clinical Implications

There are several clinically significant implications of the study findings. The first contribution of the study is that provides empirical data to highlight the issue that psychosocial issues have an impact on the voice of the Professional Voice Users.

Second, the 53-item questionnaire takes not more than 15 minutes to administer and can be used to assess the general well-being, personality and stress factors for professional voice users. It can be easily incorporated in the standard clinical practice.

Third, Professional Voice Users reported psychosocial issues affected their voice and eventually their careers. Therefore, there is a need to address these issues not only from assessment perspective but also from intervention perspective.

6.2 Limitations

This study had some limitations. First, the sample size of the study was small. Second, the data collection was done through an online mode which might have affected the responses. Third, convenient sampling was done which would restrict the generalization of the results. Finally, only four distinct professions were considered for the study, but there are many other voice-demanding occupations facing similar issues.

6.3 Future research

Developing a model that explains a relationship between personality, stress and voice disorders would provide an appropriate insight about such issues (although, there has been an extensive research in this topic but no major breakthrough is achieved). Research on other factors affecting the voice of the PVUs would fetch us a detailed list of factors responsible for the same. Furthermore, incorporating such practises of assessing personalities, stress factors and quality of life indicators into therapy compliance and generalization, one could achieve favourable outcomes. Research on interactions of these factors in individuals with voice disorder would give an idea about how they influence the course and its course and outcome. Future research in above mentioned domains would help one provide the best possible care for his/her patients.

Although, to attain statistical significance a larger sample size is suggested for future research.

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Appendix

Psychosocial Assessment for Professional Voice Users?

Name:

Education:

Age/Sex:

Profession:

Experience:

Present Complaint:

Any previous history of breathing issues, cold, cough, throat pain or any other issues with your voice in the past week? If yes, please specify.

Assessment of general well-being

Mark down the usuality of each of these health questions that have happened to you during the last three months. Have you recently...

	Not at all (0)	Not more than usual (0)	Rather more than usual (1)	Much more than usual (1)
Lost much sleep over worry?				
Felt constantly under strain?				
Been able to enjoy your normal day to day activities?				
Been feeling unhappy and depressed?				
Been feeling reasonably happy, all things considered?				

Total: _____

Interpretation: A score of 2 and above are considered as psychiatrically ill as per the guidelines of General Health Questionnaire Five (GHQ-5).

Assessment of personality

Mark down either true or false for each of these personality traits that have happened to you during the last three months.

S.No		True	False
1.	I'm not fussy about little details.		
2.	I spend too much time trying to do things perfectly.		
3.	People think I'm too strict about rules and regulations.		
4.	I often seek advice or reassurance about everyday decisions.		
5.	It's hard for me to get used to a new way of doing things.		
6.	A lot of things seem dangerous to me that don't bother most people.		
7.	I usually feel tense or nervous.		
8.	I'm a very cautious person.		
9.	I feel awkward or out of place in social situations.		
10.	I worry a lot that people may not like me.		
11.	I worry about being left alone and having to care for myself.		
12.	People think I'm too stiff or formal.		
13.	I work so hard that I don't have time left for anything else.		
14.	I let others make my big decisions for me.		
15.	I find it hard to disagree with people if I depend on them a lot.		
16.	I usually try to get people to do things my way.		
17.	I usually feel uncomfortable or helpless when I'm alone.		
18.	I keep to myself even when there are other people around.		
19.	I won't get involved with people until I'm certain they like me.		
20.	I don't ask favours from people I depend on a lot.		

Total: _____

Interpretation & Scoring Sheet Summary:

1. Circle the item numbers not followed by F, if they were answered 'True'.
2. Circle the remaining item numbers (those followed by F), if they were answered 'False'.
3. If **four or more** items from a disorder are circled, the subject has failed the screen for that disorder, and should be interviewed.

Personality								
<u>Anakastic</u>	1F	2	3	5	8	12	13	16
<u>Anxious</u>	7	6	9	10	18	19		
<u>Dependent</u>	4	11	14	15	17	20		

Assessment of stress

Markdown the point value of each of these life events that have happened to you during the last three months. Total these associated points.

1.	Death of spouse	100
2.	Divorce	73
3.	Marital separation from mate	65
4.	Death of a close family member	63
5.	Marriage	50
6.	Being fired at work	47
7.	Marital reconciliation with mate	45
8.	Major change in the health or behaviour of a family member	44
9.	Pregnancy	40
10.	Major business adjustment	39
11.	Major change in financial state (i.e. a lot worse or better than usual)	38
12.	Death of a close friend	37
13.	Changing to a different line of work	36
14.	Major change in number of arguments with spouse (i.e. a lot more or less)	35
15.	Major changes in responsibilities at work (i.e. promotion, demotion etc.)	29
16.	Son or daughter leaving home (Marriage, college, military etc.)	29
17.	Spouse beginning or ceasing work outside the home	26
18.	Beginning or ceasing formal schooling	26
19.	Major change in living condition (i.e. new home, remodelling, deterioration etc.)	25
20.	Revision of personal habits (i.e. dress, associations, quit smoking etc.)	24
21.	Major changes in working hours or conditions	20
22.	Changes in residence	20
23.	Major change in usual type and/or amount of recreation	19
24.	Major change in social activities (i.e. clubs, movies, visiting etc.)	18
25.	Taking a loan (i.e. car, TV ,freezer)	17
26.	Major change in sleeping habits (i.e. a lot more or less)	16
27.	Major change in the number of family get-togethers (i.e. a lot more or less)	15
28.	Major change in eating habits (i.e. a lot more or less, eating hours, surroundings)	15
29.	Vacation	13
30.	Major holidays	12
31.	Minor violations of law (i.e. traffic tickets, jaywalking etc.)	11

Total: _____

Interpretation: Add up the total points to find the score.

≤ 150 means a low level of stress and a low probability of developing a stress-related disorder.

≥ 150 to ≥ 299 , 50% chances of a major stress-induced problem in the next 2 years.

≥ 300 , raises the odds to almost 80% chance of getting ill in the next 2 years.

Overall Impression:

Recommendation:

Supervisor

Clinician