Trauma, Attachment, Emotions, and Voice Care: Exploratory Research

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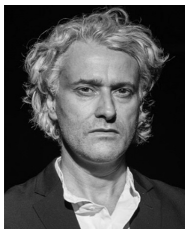
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Previous research has indicated that early-life experiences can impact an adult in a variety of ways, from health, to behavior, to voice, to the likelihood of seeking support when needed. The authors, across two preliminary studies, investigate relationships between psychological factors (e.g. childhood trauma, attachment, emotions), Voice Handicap Index (VHI) and Voice-related Quality of Life (VRQOL) measures, and whether participants ever saw a voice specialist. Across samples, we hypothesized that psychological measures would demonstrate relationships with VHI, VRQOL and seeking care. Our predictions were partially supported. These studies open a window to the importance of exploring specific psychological factors in relation to voice and as potential barriers to voice care.

INTRODUCTION

Difficult experiences can impact individuals on a variety of levels, including their health, their quality of life, and even their voice.[1] Such experiences can also impact how willing individuals are to seek care.[2] When individuals are having difficulties, seeking care does not always come naturally. Research suggests that those who suffer from emotional problems, social phobias, psychiatric conditions, and substance abuse can have trouble scheduling or following up with their providers.[3] Studies have found that factors such as low health self-efficacy, irregular sources of care, negative affect, and daily smoking can be predictors of healthcare avoidance.[4] As shown in the literature, these contributing factors can be predicted by childhood adversity.[5] This suggests that support-seeking can look different in individuals who vary in childhood adversity and other psychological factors. If childhood adversity can impact individuals on several levels, how does this translate to singers? Can it also impact how likely a singer is to seek voice care?

In the voice literature, research has indicated that, for example, CCM artists are less likely to seek voice care compared to seeking care for general medical problems. The affordability of voice care and singers' education about the importance of voice care can be related factors but psychological factors remain unknown.[6] For example, a study published in 2011 on treatment-seeking behaviors of teachers with voice disorders indicated that about half of the sample did not seek help, but psychological factors were not investigated.[7]

Why is it so critical to study the role of psychological factors—particularly childhood experiences—when it comes to voice care and treatment-

seeking behavior? The purpose of the present studies is to explore certain psychological factors in relation to voice handicap and voice related quality of life and seeking voice care. The factors taken into account here will be childhood trauma, minimization of trauma, insecure attachment (both anxious and avoidant), and self-conscious emotions such as shame; (see "Summary of Hypotheses," below).

The Impact of Trauma and Attachment on Health

Felitti and colleagues conducted a large study in 1998 which collected information from 9,000 patients regarding their health and Adverse Childhood Experiences (ACE). Results of the study showed a strong relationship between "exposure to abuse or household dysfunction during childhood and multiple risk factors for several of the leading causes of death in adults".[8] Self-reported childhood trauma and dysfunctional family settings strongly predicted health risk behaviors and outcomes such as alcoholism, smoking, drug abuse, depression, cancer, heart disease, sexually transmitted disease, physical inactivity, severe obesity.[9] Similar findings have been found for incidences of asthma and the likelihood of developing lung cancer.[10]

In 2010, McWilliams and colleagues collected information about the attachment history of thousands of patients and found styles of insecure attachment to be predictors of harmful health conditions, including headaches, high blood pressure, stroke, heart attack, chronic pain and more.[11] In a different study, insecure attachment was found to negatively impact physiological markers and reports on quality of life after cancer.[12] Studies on psychophysiology have shown the various degrees to which different life experiences can have an impact on the body. Differences have been observed in salivary cortical levels, heart rate, and more.[13]

Physiological abnormalities in brain activity and structure have been detected in survivors of abuse and neglect.[14] Different reactivity (for example different responses to being startled) have been observed in survivors of childhood trauma.[15] These findings support the notion that traumatic events can be linked to neurobiological changes. Neuroendocrine changes have been observed in survivors of childhood abuse and neglect. Bevans and colleagues also found minimized cortisol variation in survivors of childhood trauma.[16] Thus, "the lasting psychological impact of exposure to trauma in childhood might be accompanied by equally enduring changes at the molecular level."[17]

As shown in the presented literature, the impact of stressful life events in childhood can bring consequences into adulthood that affect one's physiology and health. Sometimes, these mechanisms predict a pathology of a specific kind—as in the case of a heart condition or psychogenic dysphonia—whereas at other times they predict physiological changes on a spectrum that may or may not be related to a specific condition. For instance, Ciechanowski and colleagues found insecure attachment styles to be predictors of physical unpleasant symptoms not related to a specific condition. Similarly, trauma has been found to relate to physical symptoms without the presence of a clear associated pathology.[18] Thus, there may exist varying degrees of effects of psychological factors on voice, including vocal discomfort and voice-related quality of life. Individuals referred to as "laryngoresponders" (individuals who sense discomfort in the larynx as a result of experiencing stress) perfectly captures laryngeal sensitivity that has not yet progressed into the realm of pathology.[19] Importantly, this literature captures the relationship between early experiences and laryngeal sensitivity to stress.

Trauma, Attachment, and Voice

The findings of existing literature that examine a relationship between trauma, attachment and one's voice are mixed. The majority of what we know comes from cases of functional voice disorders that appear to be preceded by traumatic, conflictual, or highly stressful events.[20] When it comes to the more "gray" areas of voices that do not evince outright pathologies, the matter becomes more complex. A study conducted on singers showed some evidence of insecure attachment style and emotional neglect history in relation to intensity measures.[21] Monti and colleagues also found some preliminary evidence of self-reported childhood trauma (in non-patients) linked to voice perturbation measures directly following trauma recall.[22] Becker and colleagues and Helou and colleagues found preliminary evidence of emotional neglect in childhood being linked to the likelihood of being a "laryngoresponder."[23]

Marmar and colleagues found some acoustic differences in veterans suffering from Post-Traumatic Stress

as opposed to veterans not meeting the same clinical criteria.[24] This is evidence that various experiences and levels of trauma can affect one's voice differently even in the complete absence of a voice complaint. Even though this type of evidence is still scarce, there is enough of it to suggest that difficult experiences (particularly in childhood) can potentially relate to voice even in non-patients.[25] This could have implications in voice care prevention and quality of life that we have yet to investigate more deeply.

Evidence by Rupert and Bartlett (2021) shows us that in voice care, much is still to be understood about the impact of attachment and trauma on patients and the role of voice specialists in understanding these effects.[26] This points to the fact that—if healthcare professionals are still educating themselves—non-patients in the general population may be very unaware of how their voice and communication may be affected by their past experiences and may have no idea when their voices even need the support of a specialist.

Voice and Emotions

Extensive literature on the role of emotion in voice has shown the significant role of emotion in vocal expression.[27] A review of findings in this extensive and important literature is beyond the scope of this article. However, we mention this literature because when studying psychological processes of voice, assessing emotional components is essential. Self-report measures (sometimes along with physiological measures) can be utilized to access a particular aspect of one's experience or particular emotion. For example, anxiety and voice have been frequently studied in the literature as well as basic emotions, such as sadness, joy, fear, and disgust.[28] Measures of self-conscious affect (e.g. shame) have been studied less in the voice literature but evidence suggests that shame could be related to select voice measures.[29] With so much emphasis on anxiety, studying self-conscious affect in a voice context could also be highly revealing.

THE PRESENT STUDIES

The literature discussed touches on research investigating different angles connecting voice, health, and stressful experiences. We aim to explore the relationships between childhood trauma, insecure attachment, and emotions, participants' scores on both the Voice Handicap Index (VHI) and Voice-Related Quality of Life (V-RQOL), and those seeking voice care. Study 1 and Study 2 are presented below. We treated these study groups separately for several hypothetical assumptions. Study 1 included non-singers and Study 2 included trained musical theatre singers. We believe these populations may experience voice, voice care, and voice discomfort very differently from each other, due to lifestyle, voice training, emotion, and identification factors related to voice and basic knowledge of their vocal apparatus. These studies were approved by The New School's Institutional Review Board.

Summary of Hypotheses

Study 1

Hypothesis 1: Childhood trauma, insecure anxious attachment and/or insecure avoidant attachment will predict scores on the Voice Handicap Index (VHI) and scores on the Voice-Related Quality of Life (V-RQOL), accounting for vocal symptoms (such as vocal hoarseness, vocal fatigue and others) and emotions (i.e. shame and anxiety, previously measured in the literature).

Hypothesis 2: Childhood Trauma, Attachment, and emotions (described in materials) will be significantly higher in those who score higher on the VHI-30 (cutoff of 18)[30], and in those who score higher on the VHI and have never sought voice care.

Study 2

Hypothesis 1 and Hypothesis 2 are the same hypotheses as in Study 1.

Study 1: Materials and Methods

Materials

Please see supplement "Materials Utilized" on the NATS multimedia page.

Participants

Eighty-two participants (specifically non-singers) were recruited online via TurkPrime for this study. Participants' age ranged between 18 and 75 (35.3±12.4), 43% (n=35) were males and 57% were females (n=47). 63.41% of participants (n=52) reported at least one category of childhood trauma.

Procedure

Participants took the online questionnaires online via TurkPrime, which contained all listed materials, including a consent form and questions assessing demographic information (e.g. age, sex, race/ethnicity, general health, talkativeness, smoking history). For detailed questions about vocal symptoms and habits, we utilized general questions about vocal symptoms (e.g. vocal fatigue, vocal hoarseness) as well as questions developed by the authors.[31]

Study 1: Results

(Note: Please see all Tables associated with these studies, and referenced below, on the NATS multimedia page.)

Hypothesis 1: The VHI (16.68±20.36) and the V-RQOL (15.64±6.68) indicated significant relationships in correlations with various psychological measures, including self-reported childhood trauma, anxious attachment, avoidant attachment, trait anxiety and shame (See Table 1 on the NATS multimedia page). Table 3 indicates that V-RQOL was significantly predicted by childhood trauma, accounting for self-reported voice symptoms, minimization of trauma, shame, guilt and anxiety. These predictors were entered to account for childhood trauma, anxiety (accounting for substantial evidence that anxiety relates to voice and vocal discomfort), shame, minimization of trauma (often accounted for when measuring childhood trauma), total self-reported voice symptoms (e.g. vocal fatigue) and guilt (often accounted for in shame literature).[32]

The same regression model with VHI entered as the outcome variable indicated a non-significant relationship between childhood trauma and VHI (p=.06). If VHI is entered into the regression model of Table 3, the relationship between childhood trauma and V-RQOL becomes completely insignificant (p=.04 becomes p=.5). This could be because VHI so strongly correlates with V-RQOL. In the same regression models, anxious and avoidant attachment were not found to be significant predictors of VHI and/or V-RQOL.

Hypothesis 2: In regard to exploring those that do not see or do not follow up with their doctors (even when they experience symptoms), we performed exploratory T-Test analyses of above and below the VHI-30 cutoff of 18 for psychological measures administered.

In Study 1, several psychological measures were higher for participants above the VHI cutoff, but only anxious attachment and shame were significant post a Bonferroni correction (See Table 6 on the NATS multimedia page). Additionally, we performed T-Test analyses In Study 1 by categories we labeled "True" and "False" where "True" signifies being above the cutoff for the VHI and never having seen a voice doctor. Participants in the "True" category (n=18) led to similar findings as in the previous table (see Table 7 on the NATS multimedia page).

Study 2: Materials and Methods

Materials

The same materials utilized in Study 1 were included and administered. (Please see "Materials Utilized" on the NATS multimedia page.)

Participants

Forty participants (trained musical theatre singers) were recruited online via TurkPrime for this study (age 29.1±5.78), ages 18–43. In this sample, 68% of participants were female (n=27) and 32% were male (n=13). 65% of participants reported at least one category of childhood trauma (n=26).

Procedure

The same procedure utilized in Study 1 was utilized in Study 2.

Study 2: Results

H1: The VHI (15.07±19.19) and the V-RQOL (14.82± 6.08) indicated significant relationships in correlations with various psychological measures, including self-reported childhood trauma, anxious attachment, avoidant attachment, trait anxiety and shame (See Table 2 on the NATS multimedia page). Particularly with childhood trauma, both VHI and V-RQOL in MT singers show correlations higher than expected in such an exploratory study. Table 4 and Table 5 show the same regression models performed in Study 1 now applied to MT singers. Both VHI and V-RQOL are significantly predicted by childhood trauma and minimization of childhood trauma, accounting for voice symptoms, shame, guilt and anxiety. In the same regression models, anxious and avoidant attachment were not found to be significant predictors of VHI and/or V-RQOL.

Here too we performed T-Test analyses of above and below the VHI-30 cutoff of 18 [46] for psychological measures administered. In Study 2, minimization of trauma is higher for singers above the cutoff, but not significantly post correction (See Table 8 on the NATS multimedia page). Further, we had planned to perform the previously mentioned T-Test analyses by categories we labeled "True" and "False," where "True" signifies being above the cutoff for the VHI and never having seen a voice doctor. In Study 2, these tests were not performed since only two participants would have been in the "True" category.

DISCUSSION

The present studies explore psychological elements in relation to voice handicap, voice-related quality of life, and seeking care. Although these studies are exploratory, we believe they encourage future studies to expand research in this under-explored area.

We recruited two online exploratory samples (non-singers and trained musical theatre singers). Our correlation analyses in both samples indicated significant associations between trauma, attachment and voice handicap and voice-related quality of life. Regression models indicated a relationship between self-reported experiences of childhood trauma and self-reported voice-related quality of life both in singers and non-singers. A relationship was also found between childhood trauma and voice handicap in singers only.

These relationships could be replicated and tested with additional methodologies, such as surveying a comparison group of voice patients and a group of in-person participants with objective voice measures that are not all based on self-report. It would be interesting for subsequent investigations to assess the history behind seeking (or not seeking) voice care as well, perhaps through qualitative interviewing.

As mentioned, those who suffer from emotional problems and certain psychological conditions are less likely to seek support. Due to missing information about those who do not seek help and report vocal discomfort, it is difficult to assess how many individuals who experience unpleasant vocal symptoms avoid seeing a voice specialist. In Study 1, participants who were above the VHI cutoff of 18 and had never seen a voice specialist, scored higher on several psychological measures, particularly anxious attachment and shame. In Study 2, the participants who scored above the VHI cutoff regardless of seeking voice care, scored higher on minimization/denial of childhood trauma, but not significantly. No data were analyzed on scoring above the VHI cutoff of never having seen a voice specialist, since not enough participants were in this category. A larger sample can shed light on this important part of the singer population. The results for the two samples presented differently from each other and a larger sample size will elucidate whether there are singers who avoid seeing a voice specialist despite higher VHI scores. Relationships between trauma history and voice related quality of life appeared in both samples, but such samples probably have a different internal concept of what voice-related quality of life means for each of them. This also calls for further exploration.

Certainly, our studies need to be interpreted with caution by contemplating them through the exploratory lens intended here. We believe that the questions we posed elucidate a few important considerations for the study of voice and psychological factors:

- Individuals who experience voice discomfort/handicap and who do not see a doctor are a population worth investigating in future studies. This type of population could help voice specialists investigate the psychological predictors that could play a role in keeping individuals from seeking support.
- Our studies suggest that childhood trauma and attachment could relate to measures of voice handicap and voice-related quality of life in different kinds of populations. If such a relation does exist, information on traumatic experiences could be collected and addressed (appropriately, within scope and following trauma-informed guidelines) in preventative voice care, not only post-diagnosis of a functional voice disorder.

CONCLUSION

Understanding what psychological factors can impact a voice user and can pose a barrier in seeking support is paramount. These studies underlie the importance of considering the relationship between singers' past experiences, their voice-related quality of life, their voice handicap and their likelihood of seeking voice care.

When a voice teacher is encouraging a student to seek care and they are met with resistance, the voice teacher can appreciate that the factors behind such resistance could be deeply rooted in that student's early life.

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    Attachment is created first with the caregiver but is carried into adulthood and manifests itself in adult relationships. Children with a history of secure attachment are found to have high levels of self-esteem and emotional health in adulthood, whereas children with histories of avoidant and anxious attachment can show the opposite patterns in adulthood. Thus, adult attachment is directly dependent on infant attachment because of "internalized" representations

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Wendy D'Andrea's research focuses on the differences between acute trauma, such as an auto accident or single-incident assault, and chronic trauma, such as sustained physical, emotional, or sexual abuse. Her lab investigates how information processes, especially attention and cognition, are impacted by prolonged trauma exposure and re-shaped through therapeutic interventions. Wendy is also particularly interested in the physiological signature of chronic trauma, and the ways in which it differs from the signature of acute trauma. Her lab uses measures of autonomic reactivity such as heart rate, skin conductance, and respiratory sinus arrhythmia (RSA), to investigate these differences.

Linda Carroll is a voice expert with over 40-years experience as a rehabilitation specialist, treating patients and singers who have high voice use demands, complicated voice issues, or dyspnea. She completed undergraduate studies in voice performance and music education, and complete graduate and doctoral degrees in applied speech science from Columbia University. Formerly in NYC for over 30 years, she maintains a private practice in Rye, NH, and serves as research scientist to the Division of Pediatric Otolaryngology at The Children's Hospital of Philadelphia. Linda teaches in the Department of Communication Sciences and Disorders at the University of New Hampshire. She serves on the editorial boards of several peer-review journals. An ASHA Fellow, she has been a vital member of several interdisciplinary voice care teams, and is a driving force for optimum vocal health care, voice rehabilitation, and assessment of dysphonia across the lifespan. Linda was invited speaker for Renée Fleming's "American Voices Symposium" at The Kennedy Center, and was keynote G. Paul Moore Lecturer at The Voice Foundation Symposium on Care of the Professional Voice. Linda is a member of NATS, and her voice studio has over 110 Grammy nominations.