Factors Affecting Voice Therapy Completion in Singers

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Summary: Objective. The purpose of this study was to determine (a) which factors may affect singers' completing voice therapy, and (b) develop predictive profiles to capture those singers at risk for dropping out of voice therapy.
Study Design. A case-control study was conducted comparing singers who completed voice therapy to singers who dropped out of voice therapy.
Methods. Six factors, including age, gender, diagnosis, length of time between laryngology referral and commencement of therapy, type of singer, and referral source were investigated in relation to voice therapy completion using the medical records of 409 singers in the Massachusetts General Hospital Voice Center database.
Results. Referral source and type of singer were demonstrated to be the most robust predictor of singers' completion of therapy.
Conclusions. Forty-seven percent of singers who were referred to voice therapy completed their course of treatment. Sixty percent of singers who dropped out of voice therapy were reliably identified based on what types of music they sing (type of singer) and who referred them for laryngology evaluation (referral source), aiding in early identification of those singers who may need additional support to reach their therapy goals. Identifying specific characteristics of singers completing or dropping out of voice therapy may allow medical professionals to better serve the specialized needs of singers who use their voices professionally and recreationally.
Key Words: Voice therapy–Voice rehabilitation–Singing voice rehabilitation–Therapy completion–Therapy dropout.

INTRODUCTION

The ultimate goal of medical and/or rehabilitative therapy—be it physical therapy, occupational therapy, speech-language therapy, psychotherapy—is to be able to serve the patient and produce positive outcomes. A breakdown in this service delivery occurs, however, when a patient does not adhere to the recommendation for therapy or drops out before its completion. Voice therapy has been established as an effective treatment for dysphonia.[1–5] For those singers who use their voices professionally and recreationally, completion of a voice therapy rehabilitation program, which focuses on singing and/or speaking voice rehabilitation, may be integral to a successful return to the stage or a recording career after vocal fold injury or loss of function. Understanding the intricacies of those singers who have completed voice therapy could lead to medical professionals being better able to serve the very specific needs of those who use their voices professionally and recreationally.

There are myriad factors potentially influencing voice therapy completion. These include scheduling issues, time between initial laryngological evaluation and first therapy session, number of therapy sessions, time between referral and evaluation, insurance coverage, gender, and age.[6,7] Voice-therapy-specific data imply that attendance and attrition vary at different stages of evaluation and intervention. Portone et al (2008)[8] found that 38% of patients did not seek evaluation by a speech pathologist after referral from a laryngologist and that of those who did, 47% did not follow through with therapy after the initial voice therapy evaluation. In a 2009 study by Hapner et al of those who began voice therapy, 65% dropped out before completion.[9] In their study, Hapner et al describe a completer of voice therapy as having met any of the three following criteria: "(1) the patient reached therapy goals, (2) the patient indicated satisfaction with voice quality, and (3) no additional benefit was expected from future sessions and the patient was referred to another discipline (medical/surgical intervention, singing voice specialist, psychology and others)." A subsequent study by Portone Maira et al studied temporal variables and their ability to predict voice therapy completion.[6] Number of therapy sessions attended and the duration between otolaryngology referral and the initial voice therapy evaluation session were predictors of voice therapy completion. The Emory group's studies in 2008, 2009, and 2011 on voice therapy completion did not look at voice therapy outcomes or the alliance between care providers and patients/clients. However, regarding the former, John et al found that good outcomes in voice therapy treatment were associated with completion of voice therapy.[10] It has been established that good communication and alliance between health-care provider and patient are associated with adherence.[11,12] Studies regarding voice therapy completion, however, only examine data that are an aggregate of both singers' and nonsingers' attrition and attendance.[6,8,9,13]

In this connection, several factors may provide predictive information regarding voice therapy completion. These include: (1) the means by which a singer arrives at the office of a laryngologist (referral by voice coach, physician, etc); (2) genre of music he or she sings; (3) length of time between laryngological evaluation and commencement of therapy; (4) underlying medical

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pathology; (5) age; and (6) gender. Previous non–singer-specific voice therapy attendance data have assessed the profiles of a voice therapy dropout[9] with regard to gender, age, race/ethnicity, quality of life impact, severity of dysphonia and diagnosis, as well as the predictive role of temporal variables influencing voice therapy completion.[6] Therefore, creating profiles that capture these variables may be useful in predicting a singer's likelihood to comply with the prescribed voice therapy (for the singing and/or speaking voice), helping to identify at-risk patients. The primary purpose of this research study was to identify factors affecting singers' completing or dropping out of a of a voice therapy program as well as define predictive profiles of completers and dropouts.

METHODS

Study design

A case control study was conducted using the Massachusetts General Hospital, Center for Laryngeal Surgery & Voice Rehabilitation (MGH Voice Center) Database, encompassing 2 years from September 1, 2011 to August 31, 2013. Patients were singers referred to the MGH Voice Center by a variety of sources (referral by voice coach, physician, etc), subsequently assessed by MGH Voice Center laryngologists and then referred to voice therapy for the speaking and/or singing voice. Singers were then treated by one of three Speech-Language Pathologists on staff, all of whom were singers of various genres of music and represented both male and female genders. This study is concerned with the original outside referral source to the MGH Voice Center. The MGH Voice Center provides multidisciplinary care to a wide variety of singers locally, regionally, and internationally.

Participants

All patients listed in the database who self-reported as singers—both amateur and professional—during the above dates were analyzed, including those who attended initial medical evaluation but did not follow up for voice therapy. Database and patient files, including physician report, voice therapy clinic notes, voice evaluation reports, and video-taped interviews ("face tapes") were accessed by the first author of this study—who was not a treating clinician—for analysis. Of the 790 patients referred for voice therapy during this 24-month period, 409 were singers and were analyzed for this study.

Instrumentation and categorization

Type of singer was self-reported by the patient during initial evaluation by the laryngologist, referenced in the case history form or weekly therapy SOAP notes (subjective, objective, assessment, and plan treatment note), and was then coded into three categories: (1) classical/opera, (2) music theater, and (3) popular. Popular music encompasses all genres of music beyond classical/opera and music theater, including but not limited to pop, rock, jazz, country, gospel, etc. The categorization reflects the performance behaviors and conditions expected within each of these genres. Classical/opera singers are trained to sing unamplified over large orchestras of 80+ instruments for long periods of time. In addition to the expectation of using their voices for song, behaviorally, music theater singers may also be performing with spoken dialogue and/or dancing. These performances are frequently amplified and many times, but not always, the accompanying instruments are below the stage. Lastly, those singers in the popular singer category usually perform in venues with amplification, and usually with no expectation of spoken dialogue and variable presence of dancing. Within these genres the accompanying instruments are often, but not always, on the same level as the singer, rather than in an orchestra pit below the stage. Diagnosis was coded in terms of Rosen and Murry,[14] which consists of four areas: (1) organic (nodules, polyps, cysts, fibrovascular changes), (2) nonorganic (muscle tension dysphonia, functional dysphonia), (3) movement disorders of the larynx (paresis, paralysis, paradoxical vocal fold movement, spasmodic dysphonia, tremor), and (4) systemic disease affecting voice production (laryngitis, tonsillitis, laryngopharyngeal reflux disease, other neurologic diseases such as Parkinson's). Patients were coded as having one or more of these based on report from the referring MGH Voice Center laryngologist. Ninety patients had both and organic and functional diagnosis. As such, during analysis, these four categories were re-coded to better reflect the heterogeneity of laryngeal diagnoses (Table 1). Referral source was reported to the physician during the initial laryngology evaluation and/or was reported during appointment scheduling at the Center and noted in the Voice Center's electronic medical records. If necessary, the patient's video-recorded interview ("face tape") was consulted to obtain data points. Length of time (LOT) between evaluation by an MGH Voice Center laryngologist and the commencement of therapy was also recorded. The timeframe for this slightly differed based upon whether a patient was given a voice evaluation, which included a full acoustic and aerodynamic assessment, or was expedited straight into therapy without a full voice evaluation with acoustic and aerodynamic assessment. Thus, for the former, LOT was calculated as the time between the initial examination by the laryngologist and the voice evaluation, whereas for the latter, LOT was calculated as the time between the laryngology examination and the first session of therapy. For those who did have a full voice evaluation, this was not counted as a "session" of voice therapy. Age at the time of medical evaluation was used.

TABLE 1.
Diagnostic Categorization

Original Diagnosis Coding Categories From Rosen and Murry (2000)[5]	Diagnosis Coding Used in Analysis
(1) Organic disorder	(1) Organic only
(2) Functional disorder	(2) Functional only
(3) Movement disorder of the larynx	(3) Both organic and functional
(4) Systemic disease affecting voice production	(4) Other