

Knowledge, Attitude, and Vocal Hygiene Practices among Choir Singers in Kanyakumari Region

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Abstract:

Choir singing is one of the major parts of Christian rituals. Kanyakumari has the largest proportion of Christians in its population. Most of them are not professionally trained, and they work in other professions. Previous studies reported that professional singers and choir singers are more prone to voice issues. This is due to a lack of awareness and Vocal hygiene practices. Hence, this study aims to assess knowledge, attitude, and vocal hygiene practices in the Kanyakumari region. A total of 120 participants, including 76 females and 44 males. The participants' age range is between 18 and 50 years. The study was conducted through online participants has to fill out the questionnaire; the concerns of the participants were also obtained through it. The questionnaire includes a demographic section, awareness of voice problems, knowledge of vocal hygiene, and vocal hygiene practices. The results showed a high prevalence of vocal symptoms with changes in voice quality (94.2%) and differences in singing high-pitched notes (53.3%), Participants showed good knowledge about hydration (87.5%), and warmup is important (81.7%), significant gap was identified in awareness of voice rest (57.5%) and vocal hygiene (59.1%). Practice section showed poor adaptation of vocal exercises (45.5% never) and a knowledge gap in warm-up behavior. Health care utilization was poor, with 55.8% never consulting an ENT or SLP for a voice problem. However, 85.8% expressed willingness to receive vocal hygiene education. Choir singers in Kanyakumari district demonstrate a high burden of vocal symptoms with significant gaps in vocal hygiene knowledge and practice. Their high interest in learning vocal hygiene practices underscores the need for speech Language Pathologist (SLP) led vocal hygiene intervention for this population.

Keywords: SLP, Choir singers, Vocal hygiene

Introduction:

The human voice is a complex and delicate instrument, particularly for professional and semi-professional voice users such as singers. Choir singers have high vocal demands and are therefore more prone to voice-related problems. In India, church choir singers are often not professionally trained, and many of them work in other professions. Sofia Rawell et al (2020) reported that a subset of choir singers experienced two or more vocal symptoms and met the criteria for functional voice disorders [1].

A systematic review and meta-analysis by Michelle Kwok et al. (2019) reported that the overall prevalence of self-reported dysphonia among singers was as high as 46.09%, highlighting the need for preventive measures in this population [2].

Several studies have reported a high prevalence of voice problems among professionally trained singers [3, 4, 5, 6, 7]. Unlike professional singers, choir singers rarely seek professional attention for voice problems it increases the risk of developing voice problems [8].

In a study by Vasudha Sharma et al. (2021), conducted among church choir singers in India, more than 80% of participants reported 2 or more vocal symptoms. The authors indicated that choir singers may be at a higher risk of developing voice problems and highlighted that many choir singers are not professionally trained. They concluded that church choir singers exhibit a high prevalence of voice problems [9].

Vocal hygiene is considered an indirect intervention in voice therapy [10]. Professional voice users need to maintain appropriate voice qualities and adopt healthy lifestyle practices to ensure optimal long-term use of voice. Awareness of vocal hygiene is important in maintaining vocal health [5].

Choir singing is considered a part of rituals in the Christian community, Kanyakumari district has a high proportion of Christians in its population, and many individuals participate in choir singing on a regular basis. Therefore, this study aims to assess the knowledge, attitude, and vocal hygiene practices among choir singers in Kanyakumari district.

Methods:

This current study was a cross-sectional survey conducted in Kanyakumari district of Tamil Nadu state, India. The study was conducted online the participants needed to fill google form that contained study questions. Participants concern was obtained before they entered the question session. Snow ball paradigm was used to obtain study participants. The participants aged only 18 to 50 years included in this study with minimum 1 year experience. Participants who aged more than 50 years and who is away from the Kanyakumari district are excluded from the study.

The study was done in 3 phases, (1) Developing & Validation, (2) Data collection, and (3) Analyzing collected data. A survey questionnaire with 27 questions was developed. The Speech Language Pathologist who has the experience with five years in the field validated the questionnaire. The questionnaire was validated by 5 SLPs, and based on their suggestions, the questionnaire was modified. Then the questionnaire is also evaluated by choir singers for a familiarity check about terminologies and the relevance of questions. Based on their suggestions, the terminologies were changed. The developed questionnaire was then sent for data collection. The data were collected from 120 choir singers.

Results:

Totally 120 choir singers participated in this study, in that 76 were females (63.3%) and 44 were males (36.7%). This indicates a higher prevalence of female choir singers in this study. As shown in table 1,

More than 90% of participants are between 18 to 30 years, and only 5.8% are above 30 years. The data was subjected to statistical analysis and the results were discussed below.

In this study, participants are asked about their symptoms associated with voice problems in a four point Likert rating scale (never, sometimes, most of the time, always), except question three in this section, that participant has to respond with multiple portions.

Vocal Symptoms:

Table 1: Distribution of Vocal Symptom Responses Among Choir Singers (n=120)

No.	Question	Always n (%)	Most of the Times n (%)	Sometimes n (%)	Never n (%)
1	Changes in voice quality	7 (5.8%)	25 (20.8%)	81 (67.5%)	7 (5.8%)
2	Tiredness in voice during/after singing	2 (1.7%)	21 (17.5%)	83 (69.2%)	14 (11.7%)
4	Feeling out of air while singing/speaking	3 (2.5%)	9 (7.5%)	85 (70.8%)	23 (19.2%)
5	Dryness in throat	—	12 (10.0%)	69 (57.5%)	39 (32.5%)
6	Frequent throat clearing	—	19 (15.8%)	85 (70.8%)	16 (13.3%)
7	Tension/tightness in neck region	8 (6.7%)	24 (20.0%)	62 (51.7%)	26 (21.7%)
8	Consultation with ENT/SLP	11 (9.2%)	7 (5.8%)	35 (29.2%)	67 (55.8%)

Table 2: Frequency of Specific Vocal Symptoms Experienced by Choir Singers (n=120)

Vocal Symptom	Count (n)	% of Respondents
Difficulty in Singing High Pitch Notes	64	53.3%
Sore Throat	41	34.2%
Husky/Strained Voice	33	27.5%
More Effortful Voice	25	20.8%
Difficulty to Talk/Sing Loud	19	15.8%
Loss of Voice	17	14.2%
Others	9	7.5%

The majority of participants reported some degree of change in voice quality, with 94.2% of singers reporting voice change, in that 67.5% reported sometimes noticing a change in their voice quality, 20.8% reported most of the time, and 5.8 % reported always. Only 5.8% reported they never experienced any changes in voice quality. Voice tiredness during and after singing is reported by 88.3% of the population to some degree, with 69.2% reporting sometimes, 17.5% reporting most of the time, and 11.7% reporting they never experienced any voice problem. When asked about specific vocal symptoms experienced 53.3% reported difficulty in singing high pitched note, sore throat 34.2%, followed by husky or strained voice 27.5%, more effortful voice production 20.8%, loss of voice 14.2%, difficulty in talking or singing loudly 15.8%, and finally 7.5% reported other symptoms not listed in the questionnaire, this question was a multiple response item, participant can respond more than one symptom. 70.8% reported they experience feeling out of air sometimes, 7.5% reported most of the time, 2.5% reported always & 19.2 % reported never experiencing this. This indicates 80.8% of singers' experiences breathless during singing at some frequency. Dryness in throat reported sometimes by 57.5% and most of the time by 10.0%, 32.5% reported they never experienced throat dryness. The overall percentage of reported throat clearing is 86.7% among participants. In that 70.8% reported sometimes and 15.8% most of the time, 13.8% reported never. 56.7% reported they experience tension in the neck region at some point, of which 20.0% experience most of the time, 6.7% always, and 21.7% never. In the total population, 55.8% reported they never consulted SLP/ENT for their voice problem, only 9.2 % consulted. This shows a gap in the use of professional consultation among choir singers.

Knowledge of Vocal Hygiene:

Table 3: Knowledge Domain — Awareness and Frequency Scale Items (n=120)

Code	Question	Well Aware / Always n (%)	Aware / Most of the Times n (%)	Slightly Aware / Sometimes n (%)	Not Aware / Never n (%)
K1	Awareness of voice rest	21 (17.5%)	31 (25.8%)	21 (17.5%)	47 (39.2%)
K2	Overall awareness of vocal hygiene	13 (10.8%)	36 (30.0%)	49 (40.8%)	22 (18.3%)
K5	Cold drinks affect voice	31 (25.8%)	23 (19.2%)	59 (49.2%)	7 (5.8%)

Table 4: Knowledge Domain — Yes/No Response Items (n=120)

Code	Question	Yes n (%)	No n (%)
K3	Adequate breath support is important for singing	108 (90.0%)	12 (10.0%)
K4	Drinking water relieves throat dryness	105 (87.5%)	15 (12.5%)
K6	Oily/spicy food and carbonated drinks affect vocal health	82 (68.3%)	38 (31.7%)
K7	Warm-up is necessary before singing	98 (81.7%)	22 (18.3%)
K8	Smoking/drinking affects voice	105 (87.5%)	15 (12.5%)

K9	Willingness to receive more information on vocal hygiene	103 (85.8%)	17 (14.2%)
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In knowledge questions, 39.2% reported they are not aware of voice rest, while 25.8% reported aware, and 17.5% reported they are slightly aware of it & 17.5% are well aware of it. This finding shows that 57.5% of participants had limited or no awareness of voice rest. Awareness of vocal hygiene: 40.8% reported slightly aware, 30.0% reported aware, 18.3% reported not aware, and 10.8% reported well aware of it. This suggests 59.1% have only slight or no awareness of vocal hygiene, indicating a significant knowledge gap in the study population. A large population of the study, 90.0% was aware that adequate breath support is important for singing, 10.0% responded no, which shows good knowledge regarding respiratory support or voice. 87.5% reported that drinking water relieves throat dryness, and 10.0% reported no, which shows good knowledge of the study population regarding the importance of hydration. 49.2% reported that cold drinks sometimes affect their voice, 25.8% reported always, 19.2% reported most of the time, and only 5.8% reported cold drinks never affect voice, this suggests 94.2% population has some knowledge about the effect of cold drinks on vocal health. 68.3% of the population reported that they are aware of oily/spicy food and carbonated drinks affecting vocal health, and 31.7% reported they are not aware of it. This suggests a lack of awareness about the importance of dietary considerations in vocal health among most of the population. 81.7% reported warm up is necessary before singing, while 18.3% responded did not. 87.5% of the population are aware that smoking and alcohol consumption negatively affect voice, while 12.5% are not aware of the importance of these behaviours in vocal health. 85.8% of participants reported they are willing to receive more information on vocal hygiene, while 14.2% reported they are not interested. This shows they are motivated for vocal hygiene education.

Vocal Hygiene Practices:

Table 5: Distribution of Vocal Hygiene Practice Responses Among Choir Singers (n=120)

Code	Question	Always n (%)	Most of the Times n (%)	Sometimes n (%)	Never n (%)
P1	Drink water while singing	10 (8.3%)	15 (12.5%)	80 (66.7%)	15 (12.5%)
P2	Rest voice after singing	16 (13.3%)	44 (36.7%)	49 (40.8%)	11 (9.2%)
P3	Warm-up before singing	19 (15.8%)	18 (15.0%)	59 (49.2%)	24 (20.0%)
P4	Avoid speaking/singing during throat discomfort	24 (20.0%)	39 (32.5%)	38 (31.7%)	19 (15.8%)
P5	Perform voice exercises to improve singing efficiency	6 (5.0%)	14 (11.7%)	46 (38.3%)	54 (45.0%)
P6	Avoid yelling/shouting to protect voice	17 (14.2%)	21 (17.5%)	42 (35.0%)	40 (33.3%)

P7	Throat clearing frequency	7 (5.8%)	44 (36.7%)	56 (46.7%)	13 (10.8%)
P8	Avoid certain foods for vocal health	20 (16.7%)	21 (17.5%)	34 (28.3%)	45 (37.5%)
P9	Use home remedies for sore throat/weak voice	27 (22.5%)	32 (26.7%)	39 (32.5%)	22 (18.3%)

In the practice part, 66.7% reported they drink water sometimes while singing, 12.5% reported most of the time, 8.3% always, 12.5% reported never. This suggests poor hydration practices among choir singers. 13.3% of the population reported that they follow voice rest after singing, 36.7% reported most of the time, and 9.2% reported never. This suggests only 50% of the study population practices voice rest consistently. 49.2% responded that they sometimes warm up before singing, 15.8% always, and 15.0% most of the time, 20% reported never warming up before singing. When comparing this with the knowledge section, 81.7% reported warmup is necessary this shows a gap in their knowledge and practice. 20.0% reported they always avoid speaking or singing during throat discomfort, 32.5% most of the time, 31.7% sometimes, and 15.8% reported they never avoid speaking or singing. This shows 84.2% of singers practice this to some extent in the study population. 45.0% responded that they never perform any voice exercises, 38.3% sometimes, and only 5.0% always. This suggests voice exercise is not widely performed by choir singers. 33.8% reported they do not avoid yelling or shouting, and 35.0% only sometimes, 14.2% reported always, and 17.5% most of the time. These findings show that only 31.7% consistently avoid shouting; this is a very common phonotraumatic behaviour. 36.7% reported throat clearing most of the time, and 46.7% reported throat clearing most of the time; only 10.8% reported they never clear their throat. This is another harmful vocal health behaviour. 37.5% reported they never avoid certain foods for vocal health, 28.3% only sometimes, 16.7% always, and 17.5% reported most of the time. This suggests that dietary considerations as a vocal hygiene practice are poorly followed by most of the participants, which is consistent with the knowledge gap identified. In the overall study, participants' total 81.7% rely on home remedies to some extent, 22.5% always 26.7% most of the time, 32.5% sometimes, and 18.5% never. This is the most well practiced behaviour by participants to some extent.

Discussion:

This study investigated knowledge, attitude, and vocal hygiene practices among 120 choir singers in the Kanyakumari district, comprising 76 females (63.3%) and 44 males (36.7%). The results showed mixed findings of vocal health and practices.

This study finds a high prevalence of vocal symptoms among choir singers. When asked about specific vocal symptoms experienced, difficulty in singing high-pitched notes was the most frequently reported symptom (53.3%), followed by sore throat (34.2%), husky or strained voice (27.5%), more effortful voice production (20.8%), loss of voice (14.2%), and difficulty talking or singing loudly (15.8%). These results are consistent with Sharma et al. (2021), who reported most prevalent symptoms in choir singers in India include difficulty in singing higher notes, loss of vocal endurance, pitch breaks, hoarseness, dryness in the throat, and discomfort in the throat [9]. Also, another study done by Ravall et al. (2020), reported that the most prevalent vocal symptoms in the choir singers were throat clearing or coughing, strained or tired

voice, sensation of pain or lump in throat, and hoarseness [1]. The high prevalence of voice quality changes (94.2%), vocal fatigue (88.3%), and voice breaks (97.5%) observed in the present study is consistent with the previous findings.

Yuksel et al. (2025), reported a high prevalence of phonotraumatic behaviour, including excessive throat clearing, among high school choir singers who lack formal education in the most prevalent vocal abusive behaviours. This highlights the importance of vocal hygiene education among choir singers [11].

In our current study, 55.8% reported they never consulted an ENT specialist or SLP for voice problems. Also, 81.7% reported they use home remedies for voice care. This finding shows avoidance of professional voice care among the Indian population. This was correlated with Nair et al. (2024), 73% of Indian Carnatic singers preferred home remedies over medical attention for voice problems [12]. Sharma et al. (2021), reported that choir singers have only limited knowledge about factors that negatively influence voice health; this makes their vocal requirements unnoticed [9]. This will correlate with findings of the current study, specifically conducted in Kanyakumari district.

In certain areas, participants showed good knowledge, including hydration 87.5%, breath support 90.0%, impact of smoking and alcohol 87.5% and 81.7% reported warm up necessary. However, in other aspects, limited or no awareness of voice rest 57.5%, and 59.1% were slightly aware or not aware. This shows significant gaps identified in awareness. Ravall et al. (2020), choir singers with a vocally demanding profession are more prone to voice problems due to their vocal demands and low vocal education [1]. Also, participants have reported limited awareness about voice rest, the most important component for vocal recovery, of which 90.8% of participants reported no awareness. Also, 31.7% of participants reported being unaware that oily, spicy food and carbonated drinks affect vocal health. These mixed findings in knowledge on vocal hygiene show the importance of vocal hygiene education for choir singers.

Another critical finding in this study was the knowledge and practice gap in vocal warm-up. 81.7% of the study population reported that warm-up is important, and 20.0% reported never warming up before singing. Santa Maria et al (2021) reported no significant difference between formally trained and untrained singers in warm-up practices, suggesting knowledge doesn't necessarily translate into practice [13]. This knowledge and practice gap in the current study shows informal choral participation of people in the Kanyakumari region, without any formal training in singing or vocal hygiene.

In the current study, voice exercises are reported as one of the least practiced behaviours; 45% of participants reported they never perform voice exercises to improve singing. Dietary modification is another less practiced behaviour with 37.5%. Yuksel, et al. (2025), reported consumption of reflex-related food in high school choir singers; this highlights the importance of vocal health education in choir settings [11]. The findings of the current study suggest that both voice exercise and dietary considerations as an important part of vocal health education in the current study population.

In the total population, 85.8% of participants reported they want to receive more information on vocal hygiene, which shows their willingness to learn professional voice care. Saeedi et al (2026), emphasized the importance of systematic vocal health education in singers for their vocal health and career longevity [14]. The strong motivation of these study participants suggests implementing a structured vocal hygiene program led by a speech pathologist for choir singers around Kanyakumari district.

Conclusion:

The present study results show that choir singers in the Kanyakumari region have limited knowledge of vocal hygiene practices, and they also experience more vocal symptoms. This result also shows that

participants are more likely to receive vocal hygiene education. The Speech Language Pathologist in the Kanyakumari region should conduct more outreach programs and conduct vocal hygiene education programs at the community level to promote vocal hygiene practices in this population.

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