

Brief Communication
 Comunicação Breve

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Voice care knowledge by dysphonic and healthy individuals of different generations*

Conhecimento em cuidados vocais por indivíduos disfônicos e saudáveis de diferentes gerações

Keywords

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Descritores

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ABSTRACT

The purpose of this study was to identify the opinions of both dysphonic and vocally healthy individuals regarding the factors that affect their voices positively and negatively, analyzing them according to the generation to which the participants belong. Eight hundred sixty-six individuals (304 dysphonic and 562 vocally healthy; 196 men and 670 women) categorized by generation: 22 individuals in Silent Generation (1926/-/1945), 180 in Baby Boomers (1946/-/1964), 285 in Generation X (1965/-/1981), and 379 in Generation Y (1982/-/2003) responded to two open questions: "Cite five things that you believe are good/bad to your voice". Five thousand, two hundred sixty answers were identified (2478 positive and 2782 negative) and organized in 365 factors related to voice care. The three most prevalent positive and negative factors for each generation were as follows: Silent Generation – positive factors: 1 - water, honey and pomegranate, 2 - apple, and 3 - ginger tea, voice exercises and gargling; negative factors: 1 - cold drinks, 2 - excessive speaking, and 3 - alcoholic drinks, smoking and screaming; Baby Boomers – positive factors: 1 - water, 2 - apple, and 3 - sleeping well; negative factors: 1 - cold drinks, 2 - screaming, and 3 - smoking; Generation X – positive factors: 1 - water, 2 - apple, and 3 - vocal warm-up; negative factors: 1 - screaming, 2 - smoking, and 3 - alcoholic drinks; and Generation Y – positive factors: 1 - water, 2 - apple, and 3 - vocal warm-up; negative factors: 1 - screaming, 2 - smoking, and 3 - alcoholic drinks. The impact of generation was greater on the frequency of the responses than on their type. Water and apple were the most frequently cited positive factors for all the generations investigated, whereas screaming and smoking were the most frequently mentioned negative factors. Behavioral aspects related to popular beliefs were reported more frequently by the older generations.

RESUMO

O objetivo deste estudo é identificar as opiniões de indivíduos disfônicos e vocalmente saudáveis sobre os fatores que fazem bem e mal para a voz, analisando-os de acordo com a geração a que pertencem. Oitocentos e sessenta e seis indivíduos (304 sujeitos disfônicos e 562 vocalmente saudáveis; 196 homens e 670 mulheres), categorizados por gerações, 22 indivíduos na *Silent Generation* (1926/-/1945), 180 na *Baby Boomers* (1946/-/1964), 285 na Geração X (1965/-/1981) e 379 na Geração Y (1982/-/2003), responderam a duas questões abertas: "Cite até cinco coisas que você acha que façam bem/mal para a sua voz". Foram identificadas 5260 respostas (2478 positivas e 2782 negativas) e categorizadas em 365 fatores relacionados à voz. Os três fatores positivos e negativos de maior ocorrência para cada geração foram: *Silent Generation* – fatores positivos: 1 - água, mel e romã, 2 - maçã e 3 - chá de gengibre, exercícios vocais e gargarejo; fatores negativos: 1 - bebidas geladas, 2 - falar muito e 3 - bebidas alcoólicas, fumar e gritar; *Baby Boomers* – fatores positivos: 1 - água, 2 - maçã e 3 - dormir bem; fatores negativos: 1 - bebidas geladas, 2 - gritar e 3 - fumar; Geração X – fatores positivos: 1 - água, 2 - maçã e 3 - aquecimento vocal; fatores negativos: 1 - gritar, 2 - fumar e 3 - bebidas alcoólicas; Geração Y – fatores positivos: 1 - água, 2 - maçã e 3 - aquecimento vocal; fatores negativos: 1 - gritar, 2 - fumar e 3 - bebidas alcoólicas. O impacto das gerações foi mais observado na frequência das respostas que em seu tipo. Água e maçã são os aspectos positivos mais citados em todas as gerações; gritar e fumar são os negativos mais frequentes. Aspectos comportamentais relacionados às crenças foram mais relatados pelas gerações mais antigas.

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INTRODUCTION

Indirect voice therapy aims to provide awareness of the factors and habits that interfere with voice production⁽¹⁾. This therapy is traditionally called vocal hygiene. It consists of a series of procedures to aid people in voice care, ranging from common sense rules to recommendations based on research⁽²⁾. It is complementary to direct voice therapy, which is performed by means of exercises. The ultimate goal of the indirect approach is to assist patients with the identification of unhealthy vocal habits, modifying or eliminating them⁽³⁾.

Scientific research has sought to understand the knowledge on vocal care by specific populations, voice professionals⁽⁴⁾ or not, dysphonic and/or vocally healthy⁽⁵⁾. However, these data do not allow generalization, as they may be strongly influenced by culture^(4,5). In addition, these individuals were possibly influenced by the generation to which they belong, considering the way they seek information and regard or interpret issues related to health and/or behavior⁽⁶⁾.

Therefore, the aim of this study is to identify the opinions of both dysphonic and vocally healthy individuals regarding the factors that affect their voices positively and negatively, analyzing them according to the generation to which the participants belong.

METHODS

The present study was approved by the Research Ethics Committee of the Universidade Federal de São Paulo – UNIFESP under no. 86985, CAAE: 04872912.5.0000.5505. All individuals agreed to participate in the study by signing an Informed Consent Form (ICF).

This is a prospective, qualitative, descriptive survey conducted with a sample of 866 individuals aged 18 to 86 years (196 men and 670 women). Of all the participants, 304 presented

dysphonia (with vocal complaints and otorhinolaryngological diagnosis) and 562 were vocally healthy (with absence of vocal complaints and/or voice/larynx problems). They were categorized according to the generation to which they belong⁽⁶⁾: 22 in Silent Generation – SG (born between 1926 and 1945), 180 in Baby Boomers – BB (1946-/1964), 285 in Generation X (1965-/1981), and 379 in Generation Y (1982-/2003). All participants completed a questionnaire with demographic data and responded to two open questions: “Cite five things that you believe are good/bad to your voice”. The responses were tabulated and categorized so that a list of factors related to the voice could be obtained and the positive and negative factors could be identified for each generation.

RESULTS

Five thousand, two hundred sixty answers (2478 positive and 2782 negative) were surveyed. These responses were organized and the repeated items were eliminated. A full list of 365 positive or potentially harmful factors related to the voice was obtained. Chart 1 shows this list in alphabetical order.

Water and apple were reported, with varying frequencies, by all generations as potentially positive aspects for the voice. Vocal warm-up was the positive factor most frequently reported by the younger generations, X and Y; whereas the older generations, SG and BB, reported behavioral aspects related to beliefs, such as teas and gargling, more often.

With respect to the negative aspects, smoking and screaming were the most frequently reported by all generations, with increased occurrence in the younger generations. The older generations, SG and BB, reported cold drinks more often as aspects potentially harmful to the voice.

The three percentages of higher occurrence of positive and negative factors related to the voice for each generation are presented in Chart 2.

Chart 1. Voice-related factors, reported by dysphonic and vocally healthy individuals, arranged alphabetically

No.	Voice-related factors	No.	Voice-related factors
1	a cold	184	lemongrass tea
2	abrupt vocal assault	185	licorice
3	acai berry	186	lime
4	acidic beverages	187	loud singing
5	acidic food	188	low temperatures
6	air conditioning	189	mallow
7	alcoholic beverages	190	Malvona
8	aloe vera	191	marijuana
9	Anabolic steroid hormones	192	mate tea with lime and salt
10	anesthetic drugs	193	medicine for throat infection
11	anesthetic food	194	medicines
12	anesthetic lozenges	195	medicines for gastroesophageal reflux
13	anesthetic spray	196	mild temperatures
14	answering the phone	197	milk
15	antibiotic drugs	198	milk with cinnamon
16	anti-inflammatory drugs	199	milk with honey
17	anti-inflammatory spray	200	mint
18	anxiety	201	mint spray
19	apple	202	mint tablets

Chart 1. Continued...

No.	Voice-related factors	No.	Voice-related factors
20	apple tea	203	mint tea
21	appropriate use of voice	204	mints
22	arguing	205	mites
23	articulate badly when speaking	206	mold
24	articulate well when speaking	207	mouth rinse with oil
25	asthma medication (puffer)	208	mouth rinse with vinegar
26	astringent food	209	murmuring
27	avocado leaf tea	210	muscle tension
28	bad vocal use	211	narghile
29	balm leaf (chewing)	212	nebulization
30	banana	213	onion
31	barefoot walking	214	onion and garlic tea
32	beef	215	onion skin tea
33	beer	216	onion tea
34	beetroot	217	oral hygiene
35	black pepper	218	orange
36	black tea	219	orange juice
37	brandy	220	orange with honey
38	bread	221	orotracheal intubation
39	breathing support	222	overeating
40	breathing well	223	parsley
41	breathing with the mouth open	224	passion fruit juice
42	breathing wrongly	225	peanut candy
43	bundle up the neck region	226	pear
44	cachaça	227	peppermint
45	caffeine	228	peppermint tablets
46	candies	229	peppermints
47	candy	230	perfume
48	careless singing	231	physical effort
49	careless singing	232	physical exercise
50	carrot	233	physical tiredness
51	carrot with honey	234	physiological saline solution
52	celery	235	pollution
53	cement powder	236	pomegranate
54	cereal bar	237	pomegranate peel tea
55	cervical stretching	238	pomegranate tea
56	chalk powder	239	poorly ventilated environment
57	Chamomile tea	240	premenstrual period
58	change in the weather	241	proper body posture
59	changing the tone of voice	242	propolis
60	cheese	243	propolis spray
61	chemicals	244	quick walking
62	chewing gum	245	rain
63	Chilean boldo (Peumus boldus) tea	246	raw egg
64	chili	247	relaxation
65	chocolate	248	relaxation of the neck
66	cigar	249	remaining silent
67	cinnamon	250	respecting limits
68	cinnamon tea	251	resting
69	citric food	252	rhinitis
70	citrus fruit	253	sadness
71	citrus juices	254	saffron tea
72	clove	255	salt
73	cocoa	256	salted water
74	coconut water	257	satisfactory quality of life

Chart 1. Continued...

No.	Voice-related factors	No.	Voice-related factors
75	coffee	258	screaming
76	cold drinks	259	sedentary lifestyle
77	cold spell	260	singing
78	comfortable clothing	261	singing for too long
79	coriander tea	262	singing in a contest
80	corticoid drugs	263	singing in tune
81	coughing	264	singing lessons
82	daily vocalization	265	singing out of key
83	dairy products	266	singing out of tune
84	dehydration (non-consumption of water)	267	singing when with the flu
85	distress	268	singing without breathing support
86	drawling	269	singing without proper vocal technique
87	drizzle	270	singing without vocal warm-up
88	drugs	271	sinusitis
89	dry air	272	sleeping badly
90	dust	273	sleeping little
91	emotional balance	274	sleeping well
92	emotional imbalance	275	sleeping with the mouth open
93	eucalypt candies	276	smiling
94	excessive speaking	277	smoke
95	exercise for mastication	278	smoking
96	exercise for the facial muscles	279	sodas
97	exercise for the joints	280	speaking
98	fan	281	speaking comfortably
99	fatty food	282	speaking effortlessly
100	filling balloons	283	speaking fast
101	forested environments	284	speaking in a contest
102	fresh air	285	speaking in moderate intensity
103	frozen food	286	speaking in public places
104	fruits	287	speaking in silent place
105	gargling	288	speaking in the normal tone of voice
106	gargling with chamomile tea	289	speaking less
107	gargling with lime	290	speaking little
108	gargling with lime and salt	291	speaking loudly
109	gargling with lime juice	292	speaking moderately
110	gargling with Malvona, warm water and salt	293	speaking normally
111	gargling with mouthwash	294	speaking on the phone
112	gargling with pomegranate	295	speaking out of the normal tone of voice
113	gargling with pomegranate peel tea	296	speaking quietly
114	gargling with propolis	297	speaking slowly
115	gargling with salt	298	speaking softly
116	gargling with vinegar	299	speaking when with the flu
117	gargling with vinegar and salt	300	speaking while exercising
118	gargling with warm physiological saline solution	301	speaking with breathing support
119	gargling with warm water	302	speaking with flowing voice
120	gargling with warm water and salt	303	speaking with neutral voice
121	gargling with warm water and vinegar	304	speaking with the back to the interlocutor
122	gargling with water and pepper	305	speaking with the chin up
123	gargling with water and salt	306	speaking without coordinating with breathing
124	gargling with water and vinegar	307	speaking without pauses
125	gargling with water, vinegar and salt	308	speech therapy
126	garlic	309	spicy food
127	gastroesophageal reflux	310	spike thorn (Maytenus illicifolia) tea
128	ginger	311	straining the voice
129	ginger candies	312	straining to sing

Chart 1. Continued...

No.	Voice-related factors	No.	Voice-related factors
130	ginger tea	313	straining to speak
131	ginger with honey	314	stress
132	going to church	315	strong emotions
133	good general health	316	strong/toxic smells
134	gossiping	317	stuffy nose
135	green tomato	318	sugar
136	greens	319	surgery
137	guaco leaf tea	320	swallowing fast
138	guava juice	321	sweet potato
139	guffawing	322	syrups
140	happiness	323	tablets
141	health care in general	324	talking
142	healthy eating	325	tea
143	healthy vocal habits	326	teaching
144	heartburn (dyspepsia)	327	tension in the neck region
145	high heels	328	tension while speaking
146	honey	329	the flu
147	honey candies	330	thermal shock
148	honey with brandy	331	throat clearing
149	honey with butter	332	throat infection
150	honey with garlic	333	throat spray
151	honey with lime	334	tight clothing
152	hot air	335	topical hydration of the vocal tract (wet gauze)
153	hot food	336	tranquility
154	hot tea	337	treble singing
155	hot water	338	using the microphone for singing
156	ice	339	using the microphone to lecture
157	ice-cream	340	vegetables
158	imitating voices	341	vinegar and salt
159	improper body posture	342	vitamin C
160	inadequate nutrition	343	vitamins
161	inadequate vocal preparation	344	vocal abuse
162	inappropriate use of voice	345	vocal exercises
163	inappropriate vocal habits	346	vocal fatigue
164	incoordination of speech with breathing	347	vocal hygiene
165	ingestion of liquids	348	vocal rest
166	inhalation	349	vocal support
167	insecurity	350	vocal technique
168	intensive laughing	351	vocal training
169	jitter	352	vocal warm-up
170	joy	353	vocalization
171	joys	354	walking
172	juices	355	warm beverages
173	karaoke singing	356	warm shower
174	knowledge of vocal physiology	357	warm water
175	lack of information on vocal health	358	water
176	lack of oral hygiene	359	water and vinegar
177	lack of rest	360	water with lime
178	lactose	361	wet weather
179	latté	362	whispering
180	laughing loudly	363	wind
181	leaving the shower with wet hair	364	yawning
182	lemon tea	365	yogurt
183	lemon tea with salt		

Chart 2. Most frequently cited positive and negative voice-related aspects according to generation

Generation	Positive factors	%	Negative Factors	%
Silent Generation 1926-/1945	Water	18.18	Cold drinks	40.91
	Honey			
	Pomegranate			
	Apple	13.64	Excessive talking	31.92
	Ginger tea	9.09	Alcoholic drinks	22.73
Vocal exercises				
Baby Boomers 1946-/1964	Gargling	58.33	Cold drinks	41.67
	Water			
	Apple			
Generation X 1965-/1981	Sleeping well	13.33	Smoking	31.67
	Water	69.82	Screaming	43.16
	Apple	30.53	Smoking	41.75
	Vocal warm-up	20.00	Alcoholic drinks	27.02
Generation Y 1982-/2003	Water	78.89	Screaming	47.49
	Apple	49.87	Smoking	46.97
	Vocal warm-up	22.96	Alcoholic drinks	32.19

DISCUSSION

The similar number of positive and negative items related to the voice reported by the participants shows that people recognize the possibility of varied positive or negative effects⁽⁵⁾, besides the fact that the SG, the oldest generation⁽⁶⁾, reported factors related to beliefs more frequently than those related to scientific knowledge.

The results of this study indicate that some aspects were common to all age groups. Hydration and consumption of apple were the positive aspects most commonly reported by all generations. Consumption of apple has been historically reported for at least two decades for its astringent action, which helps clean the mouth and pharynx, reducing excess secretion and favoring voice with better resonance^(2,7,8). Hydration is important to the vocal folds because it reduces viscosity and, consequently, lowers vibratory stress⁽⁹⁾, favoring better voice quality⁽²⁾ – an aspect that can assist in the reduction of vocal fatigue⁽¹⁰⁾.

Regarding the negative aspects, smoking and screaming were the most frequently reported by all generations. Screaming is the behavior that presents the highest vocal risk, because the larynx is used at maximum function, which may cause injuries^(2,11,12); it should, therefore, be avoided. Tobacco smoking is highly deleterious to the voice, because when the hot smoke full of chemicals is inhaled, it attacks the whole respiratory tract, causing irritation, cough, edema, increased secretion, and infection^(7,9). Significant correlation between smoking and dysphonia has been reported⁽¹³⁾, in addition to smoking being the major cause of larynx and lung cancer⁽²⁾, with increased mortality rate⁽¹⁴⁾.

Individuals in different age ranges evaluate the aspects related to the voice also differently⁽¹⁵⁾, because each generation has their own experience and sets of assumptions, which vary from one generation to the next⁽⁶⁾.

CONCLUSIONS

Several factors are identified as potentially positive and negative to the voice, with many of them constantly present regardless of the respondents' generation. Water and apple are

the most frequently cited positive factors for all the generations investigated; whereas screaming and smoking are the most frequently mentioned negative factors, with greater occurrence in the younger generations. Behavioral aspects related to popular beliefs, such as teas, gargling and cold drinks, are more frequently reported by the older generations. The impact of generation is greater on the frequency of the responses than on their type.

REFERENCES

- Carding PN, Horsley IA, Docherty GJ. A study of the effectiveness of voice therapy in the treatment of 45 patients with nonorganic dysphonia. *J Voice*. 1999;13(1):72-104. [http://dx.doi.org/10.1016/S0892-1997\(99\)80063-0](http://dx.doi.org/10.1016/S0892-1997(99)80063-0). PMID:10223677.
- Behlau M, Madazio G. Voz: tudo o que você queria saber sobre fala e canto: perguntas e respostas. Rio de Janeiro: Revinter; 2015.
- Gartner-Schmidt JL, Roth DF, Zullo TG, Rosen CA. Quantifying component parts of indirect and direct voice therapy related to different voice disorders. *J Voice*. 2013;27(2):210-6. <http://dx.doi.org/10.1016/j.jvoice.2012.11.007>. PMID:23352061.
- Scheuring EW, Scearce L, Nixon T, Cohen SM. Validation of the singing vocal health knowledge questionnaire. In: 42nd Annual Symposium: Care of the Professional Voice; 2013 May 29; Philadelphia. Proceedings. Philadelphia: The Voice Foundation; 2013 [citado em 2015 Jun 08]. [abstract ref#: SLP38]. Disponível em: <http://voicefoundation.org/wp-content/uploads/2013/09/2013Abstracts.pdf>
- Fletcher HM, Drinnan MJ, Carding PN. Voice care knowledge among clinicians and people with healthy voices or dysphonia. *J Voice*. 2007;21(1):80-91. <http://dx.doi.org/10.1016/j.jvoice.2005.09.002>. PMID:16427768.
- Washburn ER. Are you ready for generation X? *Physician Exec*. 2000;26(1):51-7. PMID:10788119.
- Behlau M, Pontes P. Higiene vocal: informações básicas. São Paulo: Lovise; 1993.
- Behlau M, Pontes P. Higiene vocal: cuidando da voz. 4. ed. Rio de Janeiro: Revinter; 2009.
- Verdolini-Marston K, Sandage M, Titze IR. Effect of hydration treatments on laryngeal nodules and polyps and related voice measures. *J Voice*. 1994;8(1):30-47. [http://dx.doi.org/10.1016/S0892-1997\(05\)80317-0](http://dx.doi.org/10.1016/S0892-1997(05)80317-0). PMID:8167785.
- Yiu EM, Chan RM. Effect of hydration and vocal rest on the vocal fatigue in amateur karaoke singers. *J Voice*. 2003;17(2):216-27. [http://dx.doi.org/10.1016/S0892-1997\(03\)00038-9](http://dx.doi.org/10.1016/S0892-1997(03)00038-9). PMID:12825654.

11. Behlau M, Oliveira G, Pontes P. Vocal fold self-disruption after phonotrauma on a lead actor: a case presentation. *J Voice*. 2009;23(6):726-32. <http://dx.doi.org/10.1016/j.jvoice.2008.03.006>. PMID:18538985.
12. Lennon CJ, Murry T, Sulica L. Vocal fold hemorrhage: factors predicting recurrence. *Laryngoscope*. 2014;124(1):227-32. <http://dx.doi.org/10.1002/lary.24242>. PMID:23754508.
13. Byeon H. The association between lifetime cigarette smoking and dysphonia in the Korean general population: findings from a national survey. *PeerJ*. 2015;3:e912. <http://dx.doi.org/10.7717/peerj.912>. PMID:25945309.
14. Sharp L, McDevitt J, Carsin AE, Brown C, Comber H. Smoking at diagnosis is an independent prognostic factor for cancer-specific survival in head and neck cancer: findings from a large, population-based study. *Cancer Epidemiol Biomarkers Prev*. 2014;23(11):2579-90. <http://dx.doi.org/10.1158/1055-9965.EPI-14-0311>. PMID:25128401.
15. Putnoki DS, Hara F, Oliveira G, Behlau M. Qualidade de vida em voz: o impacto de uma disfonia de acordo com gênero, idade e uso vocal profissional. *Rev Soc Bras Fonoaudiol*. 2010;15(4):485-90. <http://dx.doi.org/10.1590/S1516-80342010000400003>.

Author contributions

FM was responsible for the study design, collection, classification and analysis of data, and writing of the manuscript; FZ was responsible for the collection, classification and analysis of data and writing of the manuscript; MB is the work adviser, responsible for the study design, analysis of data, and revision of the manuscript.