Acta Med Croatica, 75 (2021) 157-161 *Professional Paper*

# THE ROLE OF SOCIAL SUPPORT IN THE VOICE-SPEECH REHABILITATION PROCESS

TAMARA KOPF[1], LJILJANA ŠIRIĆ[1,2], MARINELA ROSSO[3]

*[1]Osijek University Hospital Centre, Department of Otorhinolaryngology and Head and Neck Surgery, Osijek; [2]University of Zagreb, Faculty of Kinesiology, Department of General and Applied Kinesiology, Zagreb; [3]Rosso Polyclinic, Osijek, Croatia*

***Objective:*** to investigate the relationship between perceived informal social support and speech therapy parameters including the following: applying instructions given by the speech-language pathologist, success in acquisition of alaryngeal speech, and use of alaryngeal voice in everyday social interactions in laryngectomized patients. ***Methods:*** this retrospective study included 47 laryngectomized males, mean age 67.19 years. Data were collected in a semi-structured interview over the voice-speech therapy duration. The data collected were statistically analyzed in a JASP software (version 0.12.2., University of Amsterdam, The Netherlands) by appropriate statistical methods. ***Results:*** the alaryngeal speech usage in real communication circumstances is positively strongly associated with marital status, social support, following instructions and self-discipline, and successful voice-speech rehabilitation. ***Discussion:*** these findings suggest that informal social support is an important protective factor in rehabilitation process of laryngectomized patients that facilitates acquisition of alaryngeal voice. The results were in concordance with similar research findings indicating association between greater perceived social support and better treatment outcomes. ***Conclusion:*** informal social support has an important role in all components of voice-speech therapy of laryngectomees, where the most important association is with success in learning substitute speech.

***Key words:*** laryngectomy, psychosocial adaptation, social support, speech therapy, voice rehabilitation

***Address for correspondence:*** Tamara Kopf, mag. psych.
Department of Otorhinolaryngology
and Head and Neck Surgery
Osijek University Hospital Centre
J. Huttlera 4
31 000 Osijek, Croatia
E-mail: tamara.kopf@gmail.com

## INTRODUCTION

Diagnosis of malignant disease represents a direct threat to one's life and integrity. From the time of receiving a cancer diagnosis, these people are faced with extreme distress accompanied by a wide range of emotional responses that can influence both morbidity and mortality, and as such affect the lives of patients in many ways. Although medical treatment largely depends on the cancer size, stage and site, total laryngectomy is still considered the gold standard and the most common treatment choice in laryngeal malignancies, often followed by neck dissection and chemo-radiotherapy. These highly invasive treatment procedures combined with illness intrusiveness result in multiple permanent debilitating side effects and functional difficulties related to swallowing, chewing, eating and speaking accompanied by chronic pain. Besides these disease-specific challenges, individuals with laryngeal cancer have to face incremental psychosocial stressors common to the majority of cancer patients, such as fear of dying slow, painful death, fear of disability, becoming helpless and dependent on their loved ones, fear of change in appearance and body function, emotional vulnerability, uncertainty, altered social roles, social isolation and embarrassment (1). There is a growing body of literature that highlights the adverse consequences of unmet psychological needs of head and neck cancer patients, most of them leading to the increased length of hospital stay, more treatment complications, increased noncompliance with treatment protocols, higher psychiatric

comorbidities, and suicide risk (2). The effects of mutilating surgical procedures resulting in appearance alterations, changes in voice production, respiratory function, disrupting the structural and functional integrity of this region that is crucial for emotional and social expression lead to a number of psychosocial problems in laryngectomy patients. On this journey of uncertainty about future and dealing with the unpredictable outcomes, there are few factors that have been recognized as important protective determinants of psychosocial adaptation to laryngeal cancer. One of these factors is social support that has been found to facilitate post-treatment adjustment and promote recovery in head and neck cancer patients (3). Caplan *et al*. consider the lack of perceived social support as one of the most significant factors contributing to poor psychosocial adaptation in cancer patients (4). Penedo *et al*. emphasize the importance of perceived social support during treatment and rehabilitation processes in head and neck cancer patients, stating that the lack of perceived social support may be a risk factor for poor post-treatment recovery and adjustment (5). Increasing evidence suggests that a higher level of perceived social support in head and neck cancer patients facilitates post-treatment adjustment and influences disease-specific health-related quality of life (6,7). However, the loss of laryngeal voice and fear of stigmatization due to postoperative disfigurement often result in social isolation of laryngectomees depriving them of social support resources and increasing the risk of developing psychiatric comorbidities. Moreover, these maladaptive patterns may result in making poor health choices, compromise patient compliance with treatment, and interfere with rehabilitation process. Finally, nonadherence to treatment in voice rehabilitation after total laryngectomy prevents proper acquisition of alaryngeal speech, leaving patients with serious communication impairment in social interactions. Post-laryngectomy voice rehabilitation provides three available methods of alaryngeal voice: tracheoesophageal voice by insertion of a tracheoesophageal prosthesis, production of esophageal voice, and use of mechanical generators of acoustic vibrations. Despite these important implications, there is limited research on social support in the population of laryngectomy patients and little is known on how the perceived social support and substitute voice acquisition interact in the rehabilitation process. Kotake *et al*. suggest that social support and acquisition of alternative voice may promote psychological adjustment after laryngectomy through enhancement in self-efficacy and locus of control (8). Social support encourages alaryngeal voice acceptance, which, combined with improvement of speech parameters, increases the probability of using it in various communication situations in daily-life tasks (9). There are two types of social support. Informal social support is defined as support provided outside formal settings (from family, friends, patient associations), while formal support includes support provided by health professionals, paid helpers, or companies that provide caregiving help.

The aim of this retrospective study was to investigate the relationship between perceived informal social support and voice-speech therapy parameters including the following: applying instructions given by the speech-language pathologist, success in acquisition of alaryngeal speech, and use of alaryngeal voice in everyday social interactions in laryngectomized patients.

## PATIENTS AND METHODS

The sample consisted of 47 totally laryngectomized males, mean age 67.19 years. Data were collected by use of a retrospective semi-structured interview over the voice-speech therapy duration. Semi-structured interview was conducted targeting the degree of perceived informal social support from different groups of sources, i.e. partners, children, other family members, friends, work colleagues, and other laryngectomized patients. Patients were asked whether or not they felt supported and understood by their close ones and if they received emotional help and support they needed. The effectiveness of voice rehabilitation was assessed on the basis of the Harrison-Robillard-Schultz (HRS) scale for tracheoesophageal speech, Stanković scale for esophageal speech, and auditory-perceptual assessment of the speech intelligibility for electrolaryngeal speech.

The data collected were statistically analyzed in JASP computer program (version 0.12.2., University of Amsterdam, The Netherlands). Categorical variables were statistically expressed as absolute and relative frequencies. Numerical data were expressed as arithmetic mean and standard deviation. Preliminary analyses showed that the assumptions of normality, linearity and homogeneity of variance were not violated. The correlation of numerical variables was estimated by Pearson correlation coefficient r. All p values were two-sided. The level of significance was set at $\alpha=0.05$.

## RESULTS

Based on the analysis of the data collected, 47 male respondents, mean age 67.19 years, age range 39-86 years, participated in the research. The majority of subjects, 44 (93.61%) of them, were included in the voice-speech therapy after laryngectomy. According to the level of education, 30 (63.83%) respondents had acquired some education level, whereas 17 (36.17%)

had not completed their education. Psychiatric heredity was recorded in 44 (93.16%) and psychiatric comorbidity in 34 (72.34%) subjects. More than half of the respondents, 31 (65.95%) of them, were in a marital, extramarital or partnership union, whereas 16 (34.04%) respondents had the status of a widower, divorced or unmarried. Thirty-four (72.34%) respondents had informal psychosocial support during medical treatment and voice rehabilitation. During voice-speech therapy, 34 (72.34%) respondents followed the instructions of a speech-language pathologist and regularly performed rehabilitation operators independently at home with formal voice-speech therapy by speech-language pathologist. Thirty-six (76.59%) respondents were successfully rehabilitated regardless of a substitute modality of alaryngeal speech, and 34 of them (94.44%) used alaryngeal speech in everyday real communication circumstances.

Analysis of the results showed a medium positive correlation between psychiatric heredity and psychiatric comorbidity (r=0.42, p=0.003), medium negative correlation between the level of education and perception of informal social support (r=-0.32, p=0.025), and strong positive correlation between marital status and perception of informal social support (r=0.76, p=0.056). There was a strong negative correlation between following instructions and self-discipline and the patient level of education (r=0.52, p=0.543) and strong positive correlation between marital status and following instructions and self-discipline (r=0.66, p=0.256).

A weak negative correlation was found between psychiatric comorbidity and following instructions and self-discipline (r=-0.25, p=0.083) and medium positive correlation between the level of education and success in voice-speech therapy (r=0.42, p=0.003). There was a strong positive correlation between success in voice-speech therapy and marital status (r=0.55, p=0.460), perception of informal social support (r=0.66, p=0.490), and following the instructions and self-discipline (r=0.66, p=0.002). A medium negative correlation was found between the level of education and alaryngeal speech usage in real communication circumstances (r=-0.42, p 0.003). The alaryngeal speech usage in real communication circumstances showed strong positive correlation with marital status (r=0.56, p=0.322), social support (r=0.57, p=0.473), following instructions and self-discipline (r=0.68, p=0.304) and successful voice-speech rehabilitation (r=0.89, p 0.04).

## DISCUSSION

In this study, we examined the relationship between perceived informal social support and three parameters of voice rehabilitation in patients after total laryngectomy including following instructions given by the speech-language pathologist, success in acquisition of alaryngeal speech, and use of alaryngeal voice in everyday social interactions. The results indicated positive correlation between perceived informal social support and two important components of voice-speech therapy (following instructions during rehabilitation and success in acquisition of alaryngeal speech), as well as a significant positive association between perceived informal social support and use of alaryngeal voice in everyday communication. These findings suggest that informal social support is an important protective factor in rehabilitation process of laryngectomized patients that facilitates acquisition of alaryngeal voice. The results are in concordance with similar research findings indicating association between greater perceived social support and better treatment outcomes (6). It is possible that this interaction is mediated through good psychological adjustment to illness and treatment since it is well known that social support promotes psychological adjustment of cancer patients (10).

Considering literature findings emphasizing social support seeking as the most frequently used coping strategy in laryngeal cancer patients, it is plausible that increased perceived social support and encouragement provided by the loved ones enhances individual's involvement in treatment resulting in better treatment results. However, since these correlations do not allow causative conclusions, it is possible that the successful alternative voice acquisition promotes patient perception of better social involvement and support. Non-significant relationship between perceived informal social support and following instructions given by the speech-language pathologist and alaryngeal speech usage in this specific male sample could be explained by a study showing that perceived informal social support was not significantly related to psychosocial adjustment of men (7). This finding might also be due to a relatively small patient sample. The research also yielded a statistically significant correlation between successful acquisition of alaryngeal speech and the alaryngeal voice usage. This association could be explained by the fact that patients who successfully acquired alaryngeal speech were frequently encouraged by the speech-language pathologist to practice it in everyday situations. Furthermore, we found a significant positive correlation between marital status and perceived informal social support. These findings are supported by a study claiming positive correlation between social support from family member and physical and psychological adjustment to cancer (11). Finally, this study found a significant positive correlation between educational level and successful alaryngeal voice acquisition. It is possible that this finding

could be explained through the mediating process of self-efficacy. Namely, research in this field claim a strong positive association between the level of education and perceived self- efficacy (12).

The limitations of this study included a relatively small sample that limited the power of conclusions about investigated relationships. The lack of sex diversity prevents extrapolation of the results to all laryngectomized patients in voice therapy. Furthermore, the data presented were strictly correlational and did not include causal associations between perceived social support and parameters of voice rehabilitation. Finally, there was a lack of standardized measures of the observed and reported parameters in the study. Although there are several assessment tools to assess social support in adults, there is a lack of instruments for measuring the concept of informal social support in clinical settings. The use of standardized questionnaires would provide more reliable and objective measurements and enable comparison of the results with those in other cancer patients, as well as those in the general population. A key strength of the present study was that it provided valuable information on the potential role of informal social support in the course and outcomes of voice-speech therapy, which is considered a vital part of rehabilitation of laryngectomees. Study results could facilitate rehabilitation and promote recovery of laryngectomized patients.

## CONCLUSION

Social support has an important role in all components of voice-speech therapy of laryngectomized persons, with a statistically significant association between social support and success in substitute speech learning, as well as between alaryngeal speech usage in real communication circumstances and successful voice-speech rehabilitation.

## REFERENCES

1. Vrinten C, McGregor LM, Heinrich M *et al.* What do people fear about cancer? A systematic review and meta-synthesis of cancer fears in the general population. Psychooncology 2017; 26(8): 1070-9.

2. Wang T, Molassiotis A, Chung BPM, Tan JY. Unmet care needs of advanced cancer patients and their informal caregivers: a systematic review. BMC Palliat Care 2018; 17(1): 96.

3. De Leeuw JR, De Graeff A, Ros WJ, Hordijk GJ, Blijham GH, Winnubst JA. Negative and positive influences of social support on depression in patients with head and neck cancer: a prospective study. Psychooncology 2000; 9(1): 20-8.

4. Caplan G, Killilea M, Abrahams RB *et al.* Support Systems and Mutual Help: Multidisciplinary Explorations. New York: Grune & Stratton, 1976.

5. Penedo FJ, Traeger L, Benedict C *et al.* Perceived social support as a predictor of disease-specific quality of life in head-and-neck cancer patients. J Support Oncol 2012; 10(3): 119-23.

6. Karnell LH, Christensen AJ, Rosenthal EL, Magnuson JS, Funk GF. Influence of social support on health-related quality of life outcomes in head and neck cancer. Head Neck 2007; 29(2): 143-6.

7. Katz MR, Irish JC, Devins GM, Rodin GM, Gullane PJ. Psychosocial adjustment in head and neck cancer: the impact of disfigurement, gender and social support. Head Neck 2003; 25(2): 103-12.

8. Kotake K, Suzukamo Y, Kai I, Iwanaga K, Takahashi A. Social support and substitute voice acquisition on psychological adjustment among patients after laryngectomy. Eur Arch Otorhinolaryngol 2017; 274(3): 1557-65. doi: 10.1007/s00405-016-4310-0)

9. Longobardi Y, Savoia V, Bussu F *et al.* Integrated rehabilitation after total laryngectomy: a pilot trial study. Support Care Cancer 2019; 27(9): 3537-44.

10. Rizalar S, Ozbas A, Akyolcu N, Gungor B. Effect of perceived social support on psychosocial adjustment of Turkish patients with breast cancer. Asian Pac J Cancer Prev 2014; 15(8): 3429-34.

11. Theofilou P. The relation of social support to mental health and locus of control in chronic kidney disease. J Renal Nurs 2012; 4: 18-22.

12. Reisi M, Mostafavi F, Javadzade H, Mahaki B, Tavassoli E, Sharifirad G. Impact of health literacy, self-efficacy, and outcome expectations on adherence to self-care behaviors in Iranians with type 2 diabetes. Oman Med J 2016; 31(1): 52-9.

## S A Ž E T A K

# ULOGA SOCIJALNE PODRŠKE U PROCESU GLASOVNO-GOVORNE REHABILITACIJE

T. KOPF[1], LJ. ŠIRIĆ[1,2], M. ROSSO[3]

*[1]Klinički bolnički centar Osijek, Klinika za otorinolaringologiju i kirurgiju glave i vrata, Osijek; [2]Sveučilište u Zagrebu, Kineziološki fakultet, Zavod za opću i primijenjenu kineziologiju, Zagreb; [3]Poliklinika Rosso, Osijek, Hrvatska*

***Cilj*** **ove studije bio je istražiti odnos između percipirane neformalne socijalne potpore i bitnih sastavnica logopedske terapije, uključujući samostalno provođenje rehabilitacijskih operatora prema uputama logopeda, uspješno usvajanje i upotreba alaringealnog glasa i govora u svakodnevnim socijalnim interakcijama kod laringektomiranih osoba.** ***Metode:*** **Retrospektivna studija obuhvatila je 47 laringektomiranih muškaraca srednje dobi 67,19 godina. Podatci su prikupljeni polustrukturiranim intervjuom tijekom trajanja glasovno-govorne terapije. Prikupljeni podatci statistički su analizirani u računalnom programu JASP (verzija 0.12.2., Sveučilište u Amsterdamu, Nizozemska) odgovarajućim statističkim metodama.** ***Rezultati:*** **Upotreba alaringealnog govora u stvarnim komunikacijskim okolnostima pozitivno je snažno povezana s bračnim statusom, socijalnom potporom, samodisciplinom laringektomiranih tijekom terapije i uspješnom glasovno-govornom rehabilitacijom.** ***Rasprava:*** **Dobiveni rezultati ukazuju na to da je neformalna socijalna potpora važan zaštitni čimbenik u procesu rehabilitacije laringektomiranih osoba, koji olakšava proces rehabilitacije. Rezultati su sukladni rezultatima sličnih istraživanja koji ukazuju na povezanost veće percipirane socijalne potpore i boljih rezultata liječenja.** ***Zaključak:*** **Neformalna socijalna potpora ima važnu ulogu u svim sastavnicama glasovno-govorne terapije laringektomiranih, pri čemu je značajnija povezanost socijalne potpore s uspješnim usvajanjem alaringealnog glasa i govora.**

***Ključne riječi:*** **laringektomija, psihosocijalna prilagodba, socijalna potpora, logopedska terapija, glasovna rehabilitacija**