Research Journal of Medical Science

The Use of Oral-Motor Exercises Among SLPs in Jordan

Nour El-Bashiti and Jehad Ahmad Alaraifi
Department of Hearing and Speech Sciences, School of Rehabilitation Sciences, The University of Jordan, P.O. Box 23324 Amman, Jordan

Key words: Oral-motor exercise, articulation disorder, strength, experience, tongue

Corresponding Author:
Nour El-Bashiti
Department of Hearing and Speech Sciences, School of Rehabilitation Sciences, the University of Jordan, P.O. Box 23324 Amman, Jordan

Page No.: 1-5
Volume: 15, Issue 1, 2021
ISSN: 1815-9346
Research Journal of Medical Sciences

Abstract: The study aims to study the Speech Language Pathologist's (SLPs) use of oral-motor exercises with patients who present with speech disorders. It also assesses the nature and type of exercises used. Furthermore, it compares the outcome with other studies that aimed to study the use of oral-motor exercises in the intervention of speech disorders. SLPs from different work settings (clinic, speech centers, university and private practice) were selected to answer the survey questions. Those SLPs were selected among professionals who have different academic degrees in speech pathology (B.S, M.A., or Ph.D. degree). Results showed that 74% of SLPs use oral-motor exercise which is a very high number. The choice of using oral-motor exercises was not affected by the level of education or the years of experience. As for the nature of exercises, tongue exercises were used by the majority of SLPs. It was concluded that many of the recent studies do not support the use of oral-motor exercises. However, more evidence-based research is needed in order to give a solid proof of the importance of the use of oral-motor exercises in the scope of the speech pathology practice. Clinical studies that track cases in detail are needed for that purpose.

INTRODUCTION

The idea of using oral-motor exercises began in 1970 when SLPs started working hand in hand with occupational therapists and physiotherapists[1]. Oral-motor exercises are used with various kinds of difficulties such as speech sound disorders[2]. Oral-motor exercises do not focus on speech directly but they are used to affect speaking skills[3]. Several terms were used for oral-motor exercises such as, "mouth exercises" and "non-speech oral motor training". These exercises vary; some of them are active where the patient makes an effort to do the task, such as, moving the tongue back and forth, sticking tongue and trying to touch chin, pucker lips, moving lower jaw from side to side, sucking and chewing a piece of gum. While the other kind is passive oral-motor exercises, where the patient does not make an effort, such as when the clinician moves the tongue with a tongue depressor, or massages the jaw. Third kind includes the use of sensory stimulation which use vibration, heat or a cold source[4, 5].

There are studies that support the use of oral-motor exercises[2, 6, 7]. Hockenberry *et al*.[7] stated that patients who present with Parkinson's disease may improve their intelligibility when oral-motor exercises were used. Those who support oral exercises believe that they facilitate oral movements, strengthen muscles and make patients more aware of the sound and the way of producing it[8, 9].

On the other hand, other studies were against the use of oral-motor exercises[10-16]. One of the biggest concerns was that there is no evidence-based practice for using oral-motor exercises[17]. One of the justifications used was that muscle strengthening is not the main goal when it comes to speech sound production[18, 11].

A study conducted by Lemmon *et al*.[19] on 68 SLPs found that 81% use oral-motor exercises and 71% of those observed improvement in speech. Another study conducted by Lass, etc., on 122 SLPs, indicated that 69.7% of SLPs use oral-motor exercises with articulation disorder patients. Another study conducted by Lof and Watson[20] found that 85% of SLPs use oral-motor exercises in teaching patients to produce sounds and they believe that they help in therapy.

MATERIALS AND METHODS

Participants: The participants of the study were 50 SLPs who worked in Jordan with a 2-20 years of experience. Their education ranges from Bachelor degree to Ph.D. degree. They were selected to include different work settings (private clinics, schools, university clinics and hospitals).

Procedures: The SLPs were given a questionnaire to fill. The questioner consisted of four sections: The first section is the level of education of the SLP (B.S., M.A., or Ph.D.), the second section is the number of years of experience the SLP has (2-10 years or 11-20 years) and the third section is whether the SLP uses oral-motor exercises with patients who present with different speech disorders. The last section was about the nature of oral-motor exercises used (tongue exercises or any other kinds). Oral-motor exercises were divided into two groups because-from the researcher's clinical experience-SLPs usually use either exercises that target specific placement of an articulator such as assisting putting the tongue in the right place of articulation or use of exercises that are not directly related to phonetic placement such as such as blowing cheeks.

Analysis: Analysis was conducted using the statistical package for the Social Sciences Software (SPSS) 17.0 (SPSS Inc., USA, 2008). Frequency, Chi-square and level of significance were analyzed.

RESULTS AND DISCUSSION

A study sample of 50 questionnaires filled by SLPs was analyzed. The majority of SLPs held a master's degree (33, 66%), with years of experience that ranged between 2-10 years. As for the use of oral-motor exercises, 37 (74%) out of 50 SLPs stated that they use oral-motor exercises (Table 1).

Regarding statistical significance, characteristics of SLPs were examined in relation to the use of oral-motor exercises using Chi-square test. There was no statistically significant relationship between the use of oral-motor exercises and education and years of experience (Table 2).

Oral-motor exercises were evaluated in each group of years of experience. In the first group (2-10 years) which consisted of 42 SLPs, 76% use oral-motor exercises. On the other hand, only 62% of SLPs of the second group (11-20 years of experience), use oral-motor exercises (Table 3).

Based on the results, the percentage of SLPs who use oral-motor exercises is high (74%) which is closer to the findings reported by other studies[19] but less than what Lof and Watson[20] stated in their study. The results of this study show that many SLPs in Jordan use oral-motor exercises with different kinds of patients. This issue appears to be a worldwide concern. Therefore, there is a crucial need for further deep investigations that address the efficacy of oral-motor exercises in speech therapy.

Table 1: Statistical factors related to the use of oral-motor exercises N = 50

Studied factors	Frequency	Percentage
Education		
B.S.	13	26
M.A.	33	66
Ph.D.	4	8
Years of experience		
2-10	42	84
11-20	8	16
Use of oral-motor exercises		
Yes	37	74
No	13	26
Kind of exercises used (n = 37)		
Tongue exercises	26	52
Several kinds (e.g., blowing)	10	27

Table 2: Statistical factors related to the use of oral-motor exercises N = 50

Studied factors	χ^2	Df	P
Education	0.88	2	0.9
Years of experience	0.65	1	0.4

*Significant at $\alpha = 0.05$ (2-tailed) using Chi-squared test

Table 3: Years of experience of the SLPs who use oral exercises

Years of experience	Used oral exercises	Percentage
2-10 (n = 42)	32	76.1
11-20 (n = 8)	5	62.5

As for education, the highest number of clinicians who use oral-motor exercises was in favor of M.A. SLPs (66%), followed by the B.A. SLPs and finally Ph.D holders. In other words, education does not affect the use of oral-motor exercises. With regard to years of experience, it is found that the number of SLPs who have an experience of <10 years use oral-motor exercise more than those who have more experience. However, the results might be affected because most of the SLPs in the sample have an experience of <10 years. On the other hand, if we compare the percentage within each group alone (2-10 and 11-20 years of experience), we will find that 32 (76.1%) out of 42 of the lower years of experienced SLPs (2-10 years) use oral-motor exercises. In the highly experienced group (11-20 years), 5 out of 8 (62.5%) use oral-motor exercises. Each of the two groups has a high percentage in using oral-motor exercises and this stresses on the fact that experience did not affect choosing oral-motor exercises in therapy. Evidence based practice should be the judge and not years of experience[15].

As for the nature of oral-motor exercise, results showed that very high percentage of SLPs use exercises that focus on the tongue in order to facilitate producing sounds. This way of therapy addresses the active articulator (tongue) and it is very similar to what was mentioned about phonetic placement therapy where they are used to modify the speech patterns[21]. This aspect should be assessed in more detail in order to know the nature of these tongue movements and exercises used and their effect on speech sound production.

There is no match between current researches and what SLPs do in therapy[22]. Lemmon *et al*.[19] stated that 71% of SLPs found progress and this high percentage cannot be ignored. However, what was the measurement that these SLPs used? Did these SLPs use therapy without oral-motor exercise, so that, they can compare results? Different issues should be raised regarding this matter. First, there is a lack of understanding of a specific definition of oral-motor exercises and patient population should also be identified. Therefore, further research is needed in this regard[22-24]. Marshalla mentioned that the use of tools, such as tongue depressors or cotton swabs in order to teach patients where to put their tongue while producing a specific sound is part of phonetic placement therapy, which is part of traditional therapy used by Van Riper. Phonetic placement therapy employs tools to facilitate treatment and the use of oral-motor exercises is not a new subject[25,21]. However, Ruscello[26] conducted a study on using oral-motor exercises and phonetic placement. They found that patients who were treated using phonetic placement improved more than those who were treated using the non-speech oral-motor exercises. Phonetic placement techniques are targeted to produce specific sounds.

For example, the use of butterfly position in order to produce/s/sound and using a tongue depressor to assist in rising tongue up to produce/l/sound[27]. On the other hand, oral-motor exercises are not targeted to produce a specific sound and they are general exercise that are designed to prepare patients for speech therapy or for feeding and they include passive exercises, active exercises and sensory stimulation[4, 5].

Several studies stated that there is no evidence-based therapy for using oral-motor exercises[28, 5]. Arvedson *et al*.[5] reviewed studies on this matter and found that results varied between different studies. Some of the justifications against the use of oral-motor exercises is that there are differences between neurophysiologic nature of oral muscles and limbs and there is no evidence that supports the benefit of oral-motor exercises[14]. Clinicians' opinions are not an objective tool to draw scientific conclusions[29]. Therefore, oral-motor exercises are questionable and SLPs should be careful when using them. The speech pathologists should use the highest standard application of therapy and scientifically approved treatment approaches with patients[30].

CONCLUSION

Based on the results of the current study and similar studies, several issues should be addressed when considering using oral-motor exercises in the scope of practice of speech pathology. When attempting to use oral-motor exercises in therapy, a clear definition of what these exercises are should be taken into consideration and the purpose of using this type of exercises should be examined in depth.

The distinction between using them to facilitate producing sounds or using them to move the tongue or other articulators with no specific direction related to sound production should be taken into account. Evidence-based practice in the use of oral-motor exercises is crucial since this is a controversial subject.

LIMITATIONS

This study is the first study conducted on the use of oral-motor exercises by SLPs in Jordan specifically and the Middle East generally. However, this study still has some limitations. The number of SLPs who participated in the study is limited (50) compared to other studies conducted. Further studies might use a bigger number (500) and with more deep investigation on the relation of the use of oral-motor exercises and nature of speech problem targeted for therapy.

REFERENCES

01. Marshalla, P., 2011. The roots of oral-motor therapy: A personal view. Marshalla Speech & Language, Ashland, Oregon. https://pammarshalla.com/the-roots-of-oral-motor-therapy-a-personal-view/
02. Lohman-Hawk, P., 2007. Efficacy of using an oral-motor approach to remediate distorted/r. Proceedings of the ASHA Annual Convention, November 17, 2007, Boston, Massachusetts, pp: 1-4.
03. Watson, M. and G.L. Lof, 2011. Parent friendly information about nonspeech oral motor exercises. Proceedings of the 2011 ASHA Convention, November 17-19, 2011, San Diego, California, USA., pp: 1-2.
04. Clark, H.M., 2003. Neuromuscular treatments for speech and swallowing. Am. J. Speech Lang. Pathol., 12: 400-415.
05. Arvedson, J., H. Clark, C. Lazarus, T. Schooling and T. Frymark, 2010. The effects of oral motor exercises on swallowing in children: An evidence based systematic review. Dev. Med. Child Neurol., 52: 1000-1013.
06. Kamhi, A.G., 2008. A meme's-eye view of nonspeech oral-motor exercises. Semin. Speech Lang., 29: 331-338.
07. Hockenberry, K.G., 2009. The effects of oral-motor exercise on tongue strength, oral-motor agility, speech intelligibility and dysarthria in individuals with parkinson's disease. Ph.D Thesis, Illinois State University, Normal, Illinois.
08. Kamhi, A.G., 2006. Treatment decisions for children with speech-sound disorders. Lang. Speech Hearing Serv. Sch., 37: 271-279.
09. Graham, L., R. Throneburg and B. Bergstrom, 2011. Treating/R/distortions using a combined approach of visual spectrographic feedback, articulation therapy and oral motor awareness. Proceedings of the Poster Presented at the Annual Convention on the American Speech-Language-Hearing Association, April 8, 2011, San Diego, California, pp: 1-1.
10. Lof, G.L., 2006. Logic, theory and evidence against the use of non-speech oral motor exercises to change speech sound productions. Proceedings of the Annual Meeting on the American Speech-Language-Hearing Association, November 17, 2006, Miami Beach, Florida, pp: 1-11.
11. Lof, G.L., 2007. Reasons why non-speech oral motor exercises should not be used for speech sound disorders. Proceedings of the 2007 ASHA Convention Presentation, November 1, 2007, Boston, Massachusetts, pp: 1-13.
12. Taps, J., 2007. Innovations for addressing single sound articulation errors in school settings. Proceedings of the ASHA Convention, November 15, 2007, Boston Massachusetts, pp: 1-24.
13. Lass, N.J. and M. Pannbacker, 2008. The application of evidence-based practice to nonspeech oral motor treatments. Lang. Speech Hearing Serv. Sch., 39: 408-421.
14. Ruscello, D.M., 2008. Nonspeech oral motor treatment issues related to children with developmental speech sound disorders. Lang. Speech Hearing Serv. Sch., 39: 380-391.
15. Lof, G.L., 2009. Nonspeech oral motor exercises: An update on the controversy. Proceedings of the ASHA Annual Convention, November 20, 2009, New Orleans, Louisiana, pp: 1-9.
16. Mackenzie, C., M. Muir, C. Allen and A. Jensen, 2012. Are tongue and lip exercises beneficial for post-stroke dysarthria?. Intl. J. Stroke, 7: 7-7.
17. McCauley, R.J., E. Strand, G.L. Lof, T. Schooling and T. Frymark, 2009. Evidence-based systematic review: Effects of nonspeech oral motor exercises on speech. Am. J. Speech Lang. Pathol., 18: 343-360.
18. Sudbery, A., E. Wilson, T. Broaddus and N. Potter, 2006. Tongue strength in preschool children: Measures, implications and revelations. Proceedings of the Annual Meeting on the American Speech-Language-Hearing Association, November 18, 2006, Miami Beach, Florida, pp: 1-1.
19. Lemmon, R., M. Harrison, R.W. McKnight, A. Bonnette and K. Jackson, 2010. Speech language professionals perception of the efficacy of oral motor exercises. Proceedings of the Annual Meeting on the American Speech Language Hearing Association, November 18-20, 2010, Philadelphia, Pennsylvania, pp: 1-2.
20. Lof, G.L. and M.M. Watson, 2008. A nationwide survey of nonspeech oral motor exercise use: Implications for evidence-based practice. Lang. Speech Hearing Serv. Sch., 39: 392-407.
21. Marshalla, P., 2008. Oral motor treatment vs. non-speech oral motor exercises. Oral Motor Inst., Vol. 2,
22. Bahr, D., 2008. The oral motor debate: Where do we go from here. Proceedings of the 2008 Poster Session ASHA Convention, November 1, 2008, Chicago, Illinois, pp: 1-23.
23. Bahr, D.C., 2011. The oral motor debate part I: Understanding the problem. Oral Motor Inst., Vol. 3,
24. Bahr, D.C. and R.J. Banford, 2012. The oral motor debate part III: Exploring research and training needs/ideas. Oral Motor Inst., Vol. 4,
25. Marshalla, P., 2007. Oral motor techniques are not new. Oral Motor Inst., Vol. 1,
26. Ruscello, D.M., 2010. An abiding issue in the treatment of children with speech sound disorders: A comparison of oral motor and production training for children with speech sound disorders. Evidence Based Commun. Assess. Intervention, 4: 37-41.

27. Bleile, K.M., 2006. The Late Eight. Plural Publishing Inc., San Diego, California, USA., ISBN: 9781597560825, Pages: 331.
28. Powell, T.W., 2008a. The use of nonspeech oral motor treatments for developmental speech sound production disorders: Interventions and interactions. Lang. Speech Hearing Serv. Sch., 39: 374-379.
29. Schuette, A.R., 2011. Efficacy of non-speech oral motor exercises for developmental speech sound disorders. MSc Thesis, Southern Illinois University, Carbondale, Illinois.
30. Powell, T.W., 2008b. An integrated evaluation of nonspeech oral motor treatments. Lang. Speech Hearing Serv. Sch., 39: 422-427.