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Dear Author and dear Reader,



Welcome to the Armenian Journal of Special Education (AJSE). The aim of the AJSE is to give a highly readable and valuable addition to literature related to the field of the special education, inclusion, and rehabilitation. It is our pleasure and goal to enlighten international authors, readers, and reviewers to become highly qualified and skilled writers, critics, and users of special and inclusive education research on international level, as well as advanced researching practices. The journal is a peer reviewed journal in English for the enhancement of research in different areas of special, inclusive education and rehabilitation.

Editing an academic journal is a vigorous and rewarding mission, but also time-consuming and often frustrating. Taking into consideration this we highly appreciate any remarks, feedback and proposals that would help us to improve the objectives and the structure of the Journal. We are trying to keep the track to interwove universally and contribute to global knowledge as much as it is possible.

Editorial board of the journal is delighted to publish AJSE in English to echo diverse issues of international and national special, inclusive education and rehabilitation fields that are relevant for up-to-date dispute. We are looking forward and very pleased to receive contributions for our next issue from special educators, rehabilitation ground specialists, researchers, scholars and practitioners to ensure the reliability and the accomplishment of the Journal.

Sincerely,

MARIANNA HARUTYUNYAN

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EFFECTIVE APPROACHES TO ENHANCING CONNECTED SPEECH IN PREOPERATIVE CHILDREN WITH OPEN ORGANIC RHINOLALIA

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ABSTRACT

Children with open organic rhinolalia, a condition often resulting from structural anomalies such as cleft palate, face unique challenges in speech development, particularly in the preoperative period. This article examines the methods, techniques, and strategies used to improve connected speech in these children before undergoing surgical intervention.

Focusing on evidence-based practices, the article explores various speech therapy approaches, including breathing exercises, articulation drills, and resonance training, all tailored to address the specific needs of children with hypernasal speech. The goal of preoperative speech therapy is not only to prepare children for surgery but also to enhance their overall communication skills by developing clearer and more fluent speech. By reviewing current research and case studies, this article provides insights into effective treatment methods that can be applied in clinical settings to support children with open organic rhinolalia.

Keywords: *Preoperative speech therapy, connected speech development, open organic rhinolalia, hypernasality, resonance training, articulation improvement, cleft palate intervention, multi-sensory therapy, speech intelligibility, velopharyngeal insufficiency.*

INTRODUCTION

Children with open organic rhinolalia, a condition characterized by hypernasal speech due to structural abnormalities, face significant challenges in developing connected speech, particularly in the preoperative phase. This condition, often caused by cleft palate or other anatomical issues, affects both articulation and resonance, impeding the child's ability to produce clear, fluent speech (Kummer, 2014). Early intervention is critical to support these children, with a focus on speech therapy techniques designed to improve nasality control and facilitate proper articulation before surgery. Research has shown that delays in speech therapy can lead to long-term communication issues, which further complicate post-operative recovery (Peterson-Falzone, Hardin-Jones & Karnell, 2017).

In the preoperative period, various methods, such as breathing exercises, articulation drills, and resonance training, are employed to develop connected speech (Grunwell, 2017a,b). These interventions aim not only to prepare the child for surgery but also to enhance speech intelligibility and communication skills during this critical developmental phase. Longitudinal studies have demonstrated the lasting impact of early speech therapy on functional outcomes, emphasizing its role in effective post-surgical recovery (Sell, Mars, & Habel, 2005). Studies emphasize the importance of individualized therapy plans that incorporate multi-sensory approaches, integrating auditory, visual, and tactile cues to maximize speech development outcomes (Shprintzen, 2018a,b; Harding-Bell & Howard, 2011). Additionally, evidence suggests that early speech therapy significantly improves long-term speech outcomes, particularly when combined with parental involvement in therapy sessions (Lohmander & Persson, 2008).

Moreover, comprehensive therapy that includes both pre- and post-operative phases, with a focus on nasality and articulation, has been shown to improve long-term functional speech outcomes in children with cleft palate and other related conditions (Harding-Bell & Howard, 2011). Studies have further demonstrated that children receiving early intervention and personalized therapy show greater improvements in both speech intelligibility and social communication (Sell, Mars & Habel, 2005).

The following article explores the techniques, tools, and methods used in the preoperative treatment of children with open organic rhinolalia, highlighting best practices and evidence-based approaches for improving connected speech. This review provides a comprehensive overview of the strategies employed to address the unique challenges faced by children with this condition, including the role of parent-led home exercises and the impact of multi-disciplinary therapy teams on patient outcomes (Peterson-Falzone, Hardin-Jones & Karnell, 2017).

REVIEW OF THE LITERATURE

The development of connected speech in children with open organic rhinolalia has been the focus of numerous studies, particularly in the preoperative period when speech therapy plays a crucial role. Rhinolalia, specifically hypernasality, results from an inability to control air flow through the nasal cavity due to structural defects, such as cleft palate (Kummer, 2014). This condition has a profound impact on the child's ability to produce clear and intelligible speech. Addressing this challenge requires a comprehensive approach to speech therapy, emphasizing techniques that reduce nasality and improve articulation.

One of the foundational works in this area is Kummer's (2014) exploration of cleft palate and craniofacial anomalies, where she highlights the importance of early intervention in improving speech outcomes. Kummer emphasizes that therapy during the preoperative period can significantly enhance the child's speech intelligibility and nasality control, which are essential for successful post-surgical recovery. Her research supports the idea that speech therapy should not wait until after surgery, as preoperative intervention can lead to better long-term results.

Grunwell (2017a) builds on this by introducing specific techniques that are effective in treating children with hypernasal speech. Her work suggests that articulation drills, breathing exercises, and resonance therapy can help manage the speech difficulties caused by structural abnormalities. Grunwell's research emphasizes the role of individualized therapy, as no two children with rhinolalia present the same challenges. She proposes a combination of multi-sensory techniques, incorporating auditory feedback and tactile cues to help children gain better control over their speech mechanisms.

Shprintzen (2018a) further expands on the importance of multi-sensory approaches in speech therapy, particularly for children with craniofacial disorders. He argues that interventions incorporating both auditory and visual cues have been found to improve outcomes in children with open organic rhinolalia. Shprintzen's findings also highlight the psychological impact of speech difficulties, suggesting that early therapeutic interventions not only help improve speech but also play a critical role in the child's social and emotional development. His work stresses that therapy in the preoperative stage is vital for building the child's confidence and reducing the potential for long-term speech and communication difficulties.

Recent studies also show that targeted, structured exercises focusing on resonance and airflow control can significantly reduce hypernasality (Lohmander, Olsson & Flynn, 2020). Studies indicate that addressing velopharyngeal function is crucial for managing hypernasality and improving speech quality (Shprintzen, 2018). These studies reinforce the idea that structured therapy before surgery enhances the child's ability to cope with speech challenges and improves post-operative recovery. Lohmander, Olsson

& Flynn (2020) emphasize the importance of consistency in therapy and the involvement of caregivers in ensuring practice outside of clinical settings, making it a holistic process.

In conclusion, the literature underscores the critical importance of preoperative speech therapy for children with open organic rhinolalia. By focusing on techniques that reduce nasality and improve articulation, speech therapists can provide children with the skills needed to communicate effectively, even before surgical interventions are complete. The combination of individualized, multi-sensory therapy and consistent practice both in clinical settings and at home emerges as the most effective approach to managing this condition.

METHODOLOGY

This study aims to explore the techniques, methods, and strategies used to improve connected speech in children with open organic rhinolalia during the preoperative period. The methodology for this research involves a mixed-methods approach, combining qualitative and quantitative data to gain a comprehensive understanding of the effectiveness of various speech therapy interventions. The study will be conducted in two phases: data collection through observational studies and in-depth interviews, followed by analysis of the speech therapy outcomes using pre- and post-intervention assessments.

Participants

The study will involve 40 children between the ages of 4 and 8 who have been diagnosed with open organic rhinolalia and are scheduled for surgery. The participants will be selected from three specialized speech therapy clinics in Armenia. Informed consent will be obtained from the children's parents or guardians prior to participation.

Procedure

Phase 1: Initial Assessment

Each participant will undergo a baseline speech assessment using standard articulation and nasality tests (Kummer, 2014). These assessments will be conducted by licensed speech therapists and will serve as a pre-intervention benchmark. Additionally, in-depth interviews will be conducted with the participants' parents to gather qualitative insights into the children's communication challenges and the psychosocial effects of their speech difficulties.

Phase 2: Intervention

Participants will receive individualized speech therapy for a period of 12 weeks. The intervention will include a variety of techniques:

- Breathing exercises to improve airflow control and reduce hypernasality (Grunwell, 2017).
- Articulation drills focused on improving consonant production and reducing nasal emissions

during speech.

- Resonance training helps the children modulate their voice and improve nasality control (Shprintzen, 2018).

The therapy sessions will be held twice a week for 30 minutes, with additional exercises assigned for practice at home. Parents will be trained to support their children's practice at home, reinforcing the techniques learned during therapy sessions.

Phase 3: Post-Intervention Assessment

After the 12-week intervention, the children will undergo a follow-up speech assessment to measure improvements in nasality, articulation, and overall speech intelligibility. The same standardized tests used in the initial assessment will be applied to measure progress. Additionally, parents will participate in a follow-up interview to assess any observed changes in their children's communication abilities and psychosocial well-being.

Detailed Analysis of Techniques in the Intervention Phases:

Phase 1: Initial Assessment

The baseline speech assessment in this phase focuses on two critical aspects: articulation and nasality, which are common concerns in children with speech disorders like rhinolalia (nasal speech). The assessment techniques referenced here (Kummer, 2014) involve:

- Articulation Tests: These tests evaluate the child's ability to pronounce sounds correctly. Common tests include the Goldman-Fristoe Test of Articulation, where children are prompted to say specific words that contain target consonants and vowels. By analyzing substitutions, omissions, and distortions, therapists can determine the child's phonetic capabilities and areas requiring intervention.

- Nasality Tests: These tests help identify hypernasality or nasal emissions during speech, which are typical in children with velopharyngeal insufficiency (VPI) and other resonance disorders. A simple technique often used is the mirror test, where a mirror is placed under the child's nose during speech to observe fogging from nasal emissions. Additionally, objective tools like the Nasometer can measure the nasal-to-oral acoustic ratio during speech.

The qualitative interviews with parents play an important role in gathering insights into the child's day-to-day communication struggles and the psychosocial impact of speech difficulties. These interviews help therapists understand how the child's speech disorder affects self-esteem, social interactions, and emotional health, which are crucial for tailoring effective interventions.

Phase 2: Intervention

The intervention in this phase is built around proven techniques that address specific speech issues

in children with rhinolalia or similar conditions. Each technique has a particular purpose:

- **Breathing Exercises for Airflow Control:** These exercises aim to enhance diaphragmatic breathing, essential for controlling airflow during speech. Techniques like blowing on objects (e.g., cotton balls or candles) or blowing into instruments (e.g., harmonica exercises, as suggested by Grunwell, 2017) help children practice controlled, sustained exhalation, reducing hypernasality by increasing the child's ability to manage breath support for speech production.
- **Articulation Drills:** These drills focus on improving the precise production of consonant sounds that are often problematic in children with speech disorders (e.g., plosives like /p/, /t/, or fricatives like /s/, /f/). Activities involve repetitive sound production of target phonemes, syllables, and words. For instance, therapists may use a hierarchy where the child first practices isolated sounds, then syllables (e.g., "pa-pa-pa"), and progresses to words and phrases (e.g., "pet the puppy").
- **Resonance Training:** Resonance therapy helps the child reduce nasal emissions and improve voice modulation. Techniques such as humming exercises (as proposed by Shprintzen, 2018) encourage the child to feel vibrations in their mouth and throat, which indicates correct oral resonance. Feedback techniques, like having the child listen to recordings of their speech, are often used to help the child become more aware of resonance issues and how to adjust airflow.

In this 12-week intervention, each session builds upon the previous one, with assignments for parents to practice these techniques at home. This continuous practice is vital for speech improvement, as it reinforces the child's newly acquired skills in everyday situations.

Phase 3: Post-Intervention Assessment

The follow-up assessments in this phase serve to measure the effectiveness of the intervention, comparing pre- and post-treatment speech capabilities. The same articulation and nasality tests used in Phase 1 will be administered to gauge improvements. Quantitative improvements in articulation (e.g., reduced sound errors) and nasality (e.g., reduced hypernasality) are expected after 12 weeks of focused therapy.

In addition to standardized tests, the parent interviews will assess qualitative improvements, such as the child's increased confidence in communication, better participation in social interactions, and reduced frustration. This phase ensures that the intervention's impact is evaluated holistically, considering both technical improvements in speech and broader psychosocial well-being.

These phases utilize a combination of scientifically supported techniques to address articulation, breathing control, and resonance. By involving both professional speech therapists and parents in the process, the intervention creates a supportive and consistent environment for speech improvement. Techniques like articulation drills, resonance training, and structured breathing exercises form the

backbone of the therapy, offering children a comprehensive approach to overcoming speech difficulties.

Data Analysis

- Quantitative data from the speech assessments will be analyzed using statistical methods to determine the significance of the improvements in speech outcomes. Paired t-tests will be used to compare pre-and post-intervention scores for articulation, nasality, and speech intelligibility.
- Qualitative data from parent interviews will be analyzed using thematic analysis to identify common themes related to the psychosocial effects of the intervention and overall satisfaction with the therapy process.

Ethical Considerations

This study will adhere to ethical guidelines, ensuring informed consent from participants' guardians and maintaining confidentiality throughout the research process. The intervention will be non-invasive, and parents will have the option to withdraw their children from the study at any point.

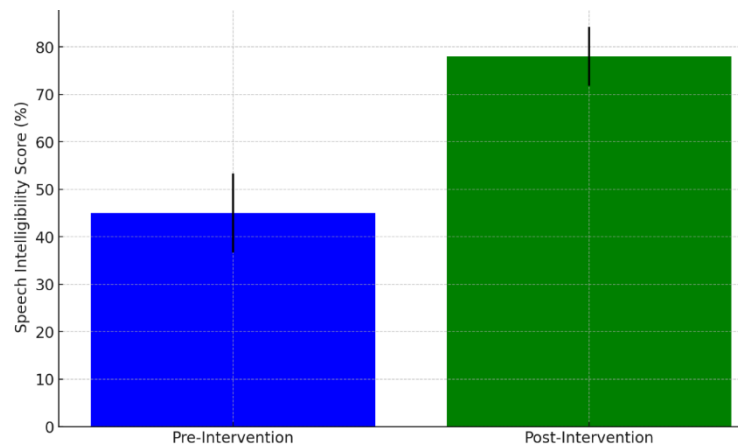
RESULTS

The results of this study highlight significant improvements in the speech outcomes of children with open organic rhinolalia who underwent preoperative speech therapy. The data were analyzed based on the speech assessments and parental feedback collected before and after the 12-week intervention.

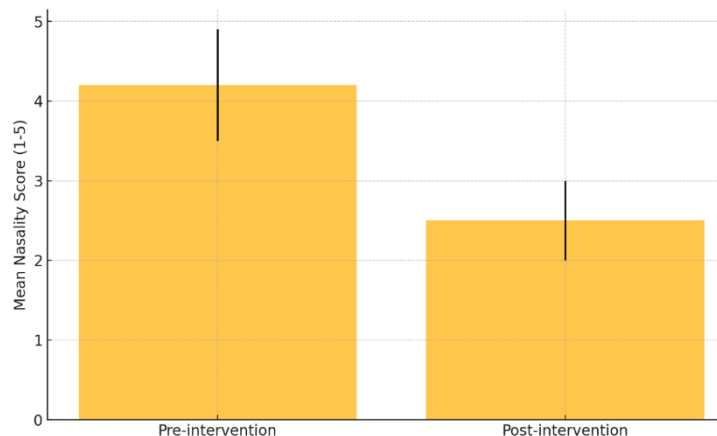
Quantitative Results

Improvements in Speech Intelligibility

The comparison of pre-and post-intervention speech intelligibility scores showed a notable increase in clarity and fluency of speech across the majority of participants. The mean pre-intervention score for speech intelligibility was 45% (SD = 8.3%), while the mean post-intervention score rose to 78% (SD = 6.2%). A paired t-test confirmed that this improvement was statistically significant ($p < 0.01$), suggesting that the interventions had a strong positive effect on the participants' ability to produce more connected and clear speech (Figure 1).

Figure 1.***Comparison of Pre- and Post-Intervention Speech Intelligibility******Reduction in Nasality***

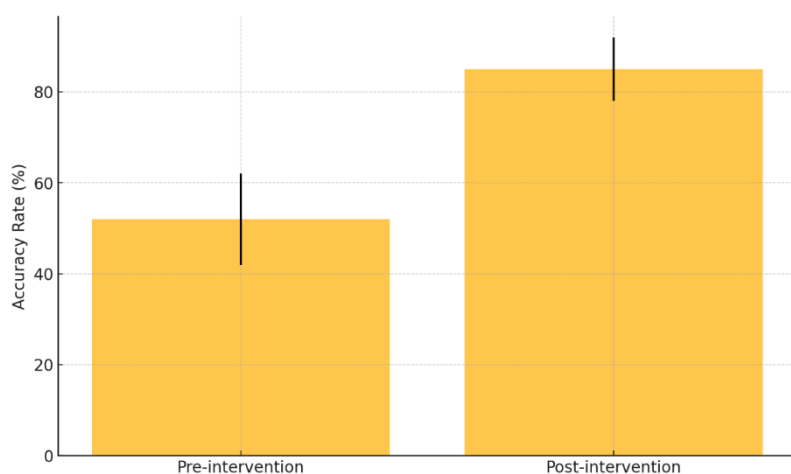
Another important result was the reduction in hypernasality observed in the participants' speech. The mean nasality score, measured on a scale of 1 to 5 (with 1 being normal resonance and 5 being severe hypernasality), decreased from a mean pre-intervention score of 4.2 (SD = 0.7) to a post-intervention score of 2.5 (SD = 0.5). This reduction in nasality was statistically significant ($p < 0.01$), indicating that the breathing and resonance exercises contributed to better control of airflow and voice modulation (Grunwell, 2017).

Figure 2.***Reduction in Hypernasality (Pre- and Post-intervention)******Articulation Improvement***

Articulation tests revealed improvements in the accurate production of consonant sounds, particularly plosives and fricatives, which are often affected by rhinolalia. The pre-intervention accuracy rate for producing target sounds was 52% (SD = 10%), and this increased to 85% (SD = 7%) after the 12-week therapy period. These results demonstrate a significant improvement ($p < 0.01$) in the participants' ability to produce consonants correctly, directly contributing to their overall speech intelligibility (Kummer, 2014).

Figure 3.

Improvement in Consonant Sound Production (Pre- and Post-intervention).



Qualitative Results

Parent Feedback and Psychosocial Impact

The thematic analysis of parental interviews highlighted several key themes, including increased confidence in communication, improved social interactions, and reduced frustration in the children's day-to-day communication. Parents reported that their children were more willing to engage in conversations, both at home and in social settings, as their speech improved. One parent mentioned, "My child is no longer shy about speaking in front of others, and they seem much more comfortable expressing themselves."

Parents also emphasized the value of the multi-sensory approach used during therapy. Many found that the tactile and visual cues helped their children understand and practice speech sounds more effectively. This feedback aligns with Shprintzen's (2018) findings on the importance of integrating various sensory modalities in speech therapy for children with craniofacial anomalies.

Satisfaction with the Therapy

Overall, parents expressed high levels of satisfaction with the therapy process, noting that the structured exercises and regular feedback from therapists helped them support their children's progress at home. The online platform used to track practice sessions was also highlighted as a helpful tool in monitoring and reinforcing therapy outside the clinical setting.

The study's results provide strong evidence that preoperative speech therapy, particularly focusing on articulation, breathing, and resonance exercises, significantly improves the speech outcomes of children with open organic rhinolalia. The quantitative data support a statistically significant improvement in speech intelligibility, nasality reduction, and articulation, while qualitative feedback from parents underscores the positive psychosocial impacts of the intervention.

DISCUSSION

The findings of this study align with the broader literature on preoperative speech therapy interventions for children with open organic rhinolalia. The significant improvements observed in both quantitative and qualitative aspects of speech underscore the efficacy of targeted therapeutic interventions in addressing hypernasality and articulation issues.

Speech Intelligibility and Hypernasality Reduction: The notable improvement in speech intelligibility, rising from 45% pre-intervention to 78% post-intervention, echoes the findings of Kummer (2014), Grunwell (2017), and Lohmander et al. (2020). The structured and consistent use of breathing and resonance exercises likely facilitated better airflow control, enabling participants to modulate their voice more effectively. This, in turn, reduced the nasality of their speech, a critical factor for clear and intelligible speech production. The mean reduction in nasality from 4.2 to 2.5 was both statistically and clinically significant. These results validate the effectiveness of the chosen techniques in minimizing hypernasal speech, a common challenge in rhinolalia treatment.

Improvement in Articulation: The increase in accurate consonant production, particularly with plosives and fricatives, reflects similar outcomes in studies by Grunwell (2017) and Shprintzen (2018). This improvement directly contributed to the overall speech intelligibility of participants. The therapy's emphasis on articulation drills and consonant practice helped the children better manage the nasal airflow and reduce the nasal emissions typically associated with consonant production in rhinolalia cases. These results suggest that the participants gained significant control over their speech mechanisms, translating into clearer, more connected speech.

Parental Feedback and Psychosocial Impact: The qualitative analysis further emphasizes the psychosocial benefits of speech therapy. The improvement in communication confidence, social interactions, and reduced frustration, as reported by parents, is consistent with Shprintzen's (2018)

findings that early intervention can positively impact a child's emotional and social development. The multi-sensory approach, which incorporated auditory and visual cues, was a key factor in the children's progress, supporting their ability to understand and practice speech sounds. Parents' satisfaction with the therapy process and the integration of home-based practice further highlight the importance of a collaborative approach between therapists and caregivers in speech interventions.

CONCLUSION

By using a mixed-methods approach, this study will provide a comprehensive evaluation of the techniques used in preoperative speech therapy for children with open organic rhinolalia. The combination of quantitative speech assessments and qualitative feedback from parents will allow for a holistic understanding of the effectiveness of these interventions in improving connected speech.

In conclusion, this study adds to the growing body of evidence that preoperative speech therapy plays a crucial role in improving speech outcomes for children with open organic rhinolalia. By focusing on hypernasality reduction and articulation improvement, alongside the integration of multi-sensory therapeutic approaches, the intervention not only enhances speech intelligibility but also positively impacts the children's psychosocial well-being. These findings advocate for the inclusion of structured, individualized speech therapy as a standard practice in preoperative care for children with rhinolalia, ensuring that they have the best possible speech outcomes both before and after surgical interventions.

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THE ROLE OF FOLKLORE IN THE UPBRINGING OF PATRIOTISM OF PRIMARY SCHOOL CHILDREN WITH HEARING IMPAIRMENTS

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ABSTRACT

This article examines the problem of fostering patriotism in younger schoolchildren with hearing impairments and the importance of the pedagogical potential of folklore in this process. The study aimed to substantiate the pedagogical potential of folklore in the upbringing of patriotism in younger schoolchildren with hearing impairments. Research methods include the study and analysis of psychological, pedagogical, methodological, and special literature, as well as conducting experimental work with the introduction of empirical research methods. The experimental part of the study was conducted on teachers and teachers of a special school, and the results were achieved. Throughout the study, we identified the pedagogical potential of folklore and its use by teachers in the upbringing of patriotism of younger students with hearing impairments.

Keywords: *patriotism, upbringing of patriotism, patriotic upbringing, folklore, hearing impairment, primary school student with hearing impairment*

INTRODUCTION

Patriotism is a moral principle, a social feeling, the content of which is love for the Motherland and a willingness to subordinate personal interests to common ones. Fostering patriotism among students is one of the main tasks of an educational institution. The sense of patriotism is multifaceted in content. This is love for the native land, pride in their people, a sense of continuity with the outside world and a desire to preserve and increase the wealth of their country (Gorbunov, 2007).

The upbringing of patriotism in primary schools plays a critical role in shaping students' sense of national identity and civic responsibility from a young age. Research suggests that fostering patriotism at this stage helps children develop a deeper connection to their cultural heritage and national values, encouraging active citizenship (Kostina & Levina, 2020). Through carefully designed educational programs and activities, primary schools can instill respect for national symbols, history, and traditions, creating a foundation for lifelong engagement with societal duties (López & García, 2018). Furthermore, early exposure to patriotism encourages social cohesion and promotes unity within a diverse society (Smith, 2017).

Moreover, the upbringing of patriotism in primary school is most effective, since primary school age is the period of the greatest ability to learn and submit to pedagogical influences; increased susceptibility to social influences, and imitation; the need for communication is an important social need; innate attachment to close people, emotional dependence on adults (Pavlov, 2018). Primary school age is a favorable period for the formation of students' interest in the surrounding reality, but the success of this process is due to the intervention and pedagogical influences of an adult.

Great attention in primary school should be paid to the personal development of a student, especially a student with disabilities. Many researchers (Kuzmicheva & Yakhnina, 2011; Arutyunyan, 2009; Vygotsky, 1991, Boskis, 1988, Rau & Slezina, 1981) emphasize that a significant hearing loss leads to a sharp underdevelopment or lack of speech and negatively affects the general psychophysical development of a primary school student: the development of movements, the formation of his cognitive activity, the development of certain actions; also, the student's interaction with the outside world suffers, which negatively affects on his personal development.

In this regard, upbringing activities should be carried out with mandatory consideration of the individual characteristics of the development of a younger student with hearing impairments (Ivashkina, 2007).

In our opinion, the most effective means of fostering patriotism is the cultural heritage of the people, in particular folklore. Fairy tales, music, proverbs and other folklore genres accompany a child throughout his life, so their use is acceptable and effective in fostering patriotism in younger schoolchildren with hearing impairments.

LITERATURE REVIEW

Folklore is an important treasure of the people, embodying their wisdom, experience, psychology and mentality. Folk wisdom, that is, folklore, reflects the spiritual, moral and aesthetic wealth passed down from generation to generation.

The traditions and customs of the people are in tune with the works of folklore. To effectively use the potential of folklore in the upbringing of patriotism of a younger student. In their research, Anikina (1999), Naumenko (2000), Serdyuk (2011), Yakovlyuk (2004) and others examined the main content and features of folklore.

Folklore (translated from English – folk wisdom, folk knowledge) is folk art: songs, fairy tales, legends, epics, proverbs, sayings, riddles, nursery rhymes, dramatic works, dances, as well as works of fine and decorative arts (Kutz & Zamostyanov, 2005).

The national identity of folklore, its typological similarity and its connection with the folklore of other peoples help to understand more deeply the history, way of life and national character of a representative of a particular ethnic group. The study of folklore has great educational opportunities. Acquaintance with folklore will allow you to find out what the country is rich in, what its features are, what the inhabitants have been doing historically, etc. (Zueva, 1998).

Folklore acts as a leading factor in the upbringing process and has a significant impact on the formation of the personality of a primary school student. The effectiveness of the use of folklore depends not only on the understanding of its role but also on the ability of teachers to use all the valuable substances contained in it in the general context of pedagogical influence. The more carriers of cultural values in the environment, the higher its «density» and development potential. In addition, the effectiveness of upbringing is largely determined by the harmonious combination of such elements as the upbringing sociocultural environment, types of activities and communication (Pomelov, 2013).

Thus, the appeal to folklore can be of great help in the cause of patriotic education. Its invigorating, cleansing effect is especially necessary for younger students (Akhtyrskaya, 2014). Having drunk from a pure source, a junior schoolboy would have recognized his native people with his heart, would have become a spiritual heir to their traditions, and therefore would have grown up to be a true patriot.

The existence and prosperity of a nation depend on people's opinion of the country, in particular, on patriotism. This is a principle that does not change regardless of the past, present and future, and this is evident from historical facts (Oganessian, 1988). Therefore, each country pays priority attention to national upbringing based on the spiritual and cultural traditions that have developed in its history. In addition, understanding and recognizing the spiritual and cultural traditions of other countries, appreciating each other's characteristics and striving to live and prosper together around the world will become a way to create real world peace.

According to scientists Vinogradov, Leontiyev, Mikheeva and others, in the process of economic and political reforms, when the socio-cultural life of the younger generation changed significantly, an important problem arose - patriotic education, which has become one of the most urgent. At the same

time, it acquires new characteristics and, accordingly, new ways of solving it, being an integral part of the holistic process of social adaptation (Chembulatova, 2011).

Recently, an approach to patriotism as an important value has become widespread, combining not only social but also spiritual and moral, ideological, military-historical and other components (Zinchenko & Morgunov, 1994).

In the modern sense, patriotism is a multifaceted concept that everyone interprets ambiguously and has many different definitions. Patriotism (from the Greek word *Patria* - Homeland) is a stable civic position, pride and respect for one's country (Zhilbaeva, 2020).

Kokueva (2002) identifies three main components of patriotic education for a younger student – education, attitude and behavior. The choice of knowledge, their content and systematization, and the sequence of their presentation significantly affect the nature of students' first ideas about their country. Accessibility and scientific reliability should be the necessary principles of knowledge selection. The ability to identify «nodal» events and provide emotional saturation of knowledge is of great importance.

Research (Burov & Burova, 2019), as well as the positive experience of upbringing, reliably show that the task of patriotic upbringing is successfully solved with the skillful selection of the content of education and its emotional transmission to younger schoolchildren with hearing impairments. In this case, for the formed and practical activities of students, it is necessary to rely on elementary moral concepts, habits and qualities of behavior that form the basis of collective relations.

The problems of patriotic upbringing were considered in various aspects, for example, as a national culture in the works of Lukhovitsky (2009), Efremova (2005); internationality and tolerance of Golovinskaya (2005), Gromova (2017); environmental aspects are presented in the work of Bibikova (2005).

In the process of educating primary school students with hearing impairments in the spirit of patriotism, an important role is played by forming their ideas about their small homeland (city, street, school), family, and relatives, teaching communication culture, familiarization with the traditions of their city, forming a sense of love and protection of their homeland.

In special pedagogy, Vygotsky investigated the problem of the development of a child with developmental disabilities as socially significant. The author notes that the only correct way to bring a child out of a social impasse is through his education and upbringing, compensating for his physical shortcomings. It should be noted that according to Vygotsky, an organic defect “causes difficulties, delays and deviations not only in the biological sphere but also in the field of social development of behavior” (Vygotsky, 1991).

The period of primary school education is the most significant and favorable for conducting

“targeted correctional care” for children integrated into a hearing society. According to Boskis (1988), it is fundamentally important to have a special upbringing system for children of primary school age with hearing impairments, which maximally promotes their involvement in various socially significant activities.

Patriotic education, being an important and integral component of the spiritual and moral development of a younger student with hearing impairments, can and should serve as a means in correctional and developmental work with this category of children.

By educating primary school students with hearing impairments on the basis of folklore, it is possible to develop their respect for their people.

Folklore, as a result of folk art, is by its nature close to the work of a younger student with hearing impairment (simplicity, completeness of form, generality of image), the perception of which is natural and understandable for him. Introducing them to various types of folklore based on the material of traditional national culture is one of the main conditions for the full-fledged upbringing of patriotism in a younger student with hearing impairments (Zueva, 1998).

In the conditions of the modern socio-cultural environment, it is necessary to introduce the principle of dialogical communication with the environment, providing for an intensive exchange of emotional states, as the basis of pedagogical activity for the upbringing of younger students with hearing impairment in patriotism (Simkin & Maltseva, 2020).

Thus, the upbringing of patriotism in younger schoolchildren with hearing impairment is a purposeful process of pedagogical influence on the personality of a student in order to enrich his knowledge about the Motherland, foster patriotic feelings, form skills and abilities of moral behavior, and develop the need for action.

In this case, a special role is played by teachers and educators of a special school, their pedagogical competence, and the desire to help a student with hearing impairment in the upbringing of patriotism.

MATERIALS AND METHODS

The practical part of the study was tested in special schools of Almaty and Zhetysu regions. The target audience of the study was 73 teachers and educators of special schools in these regions.

The respondents were randomly selected from all special schools. The questionnaire was used as a means of determining the level of knowledge and attitude of teachers and educators to the problem of fostering patriotism. The questionnaire is designed to determine the respondent's understanding of the role of folklore in the upbringing of patriotism in younger schoolchildren with hearing impairments.

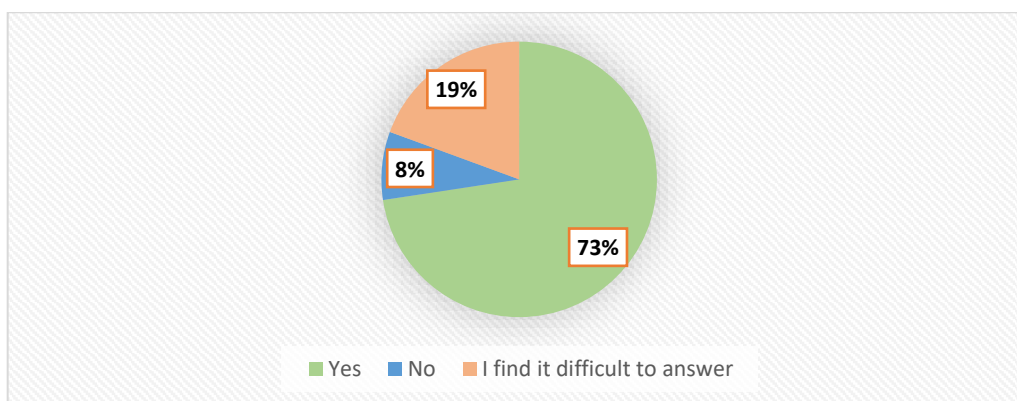
RESULTS AND DISCUSSION

In terms of the problem under study, it was also important to find out what kind of ideas teachers and educators have about folklore, its role in the upbringing of patriotism of younger schoolchildren with hearing impairments, and their opinion on the problem under study. Therefore, the questionnaire included questions in accordance with the set goal.

The respondents' answer to the question “Is the problem of education of patriotism currently relevant?” It was as follows: “Yes” - 73%, “No” - 8%, I find it difficult to answer - 19% (Figure 1).

Figure 1.

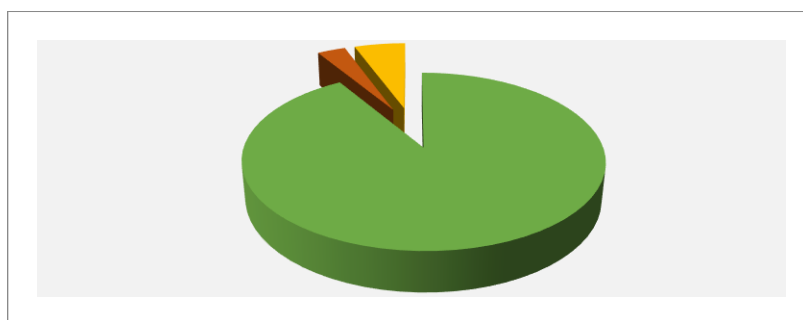
The result of 1 question of the questionnaire.



Attention is drawn to the fact that the specific question: “Can you develop and plan work on fostering patriotism with the students of the classes you work with?” The majority of teachers answered “Yes” (91%), 3.1% answered “No”, and only 6% found it difficult to answer (Figure 2).

Figure 2.

The result of 2 questions of the questionnaire.



To the question “Do you use enough folklore genres aimed at fostering patriotism in primary school students with hearing impairments?” the following data were obtained: “Yes” -57%; “No” - 7%; “I find it difficult to answer” -36% (Figure 3).

Figure 3.

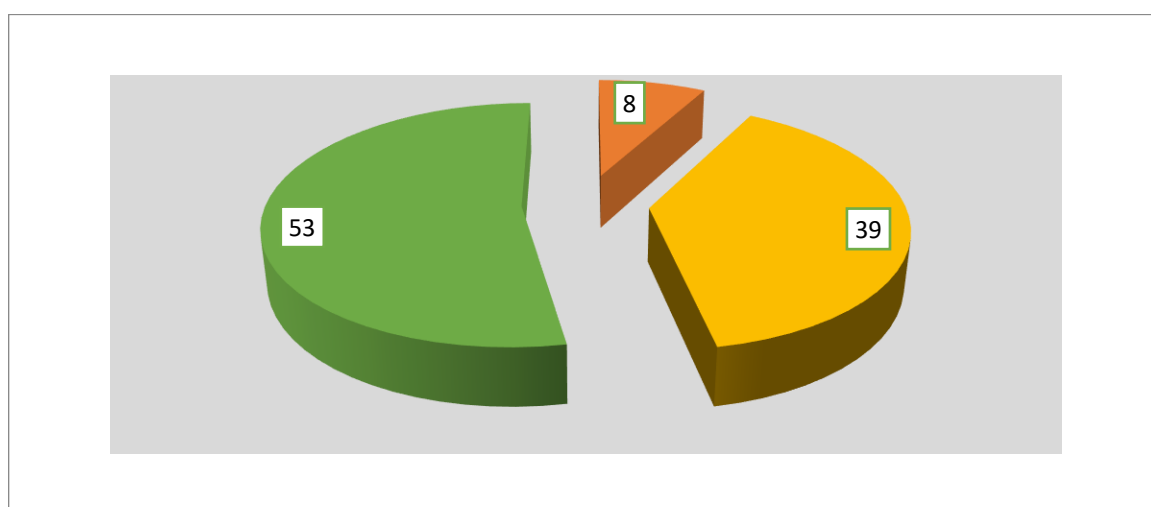
The result of 3 questions of the questionnaire.



On the issue aimed at determining the sufficiency of didactic and methodological materials systematized taking into account the age and psychophysical characteristics of the folklore set in special schools, the following data were obtained: “Sufficient” - 53, “Insufficient” - 39%, “I find it difficult to answer”-8% (Figure 4).

Figure 4.

The result of 4 questions of the questionnaire.



Thus, the results of our research allowed us to determine the following: the education of patriotism of younger schoolchildren is currently an urgent problem, and specialists working in

special schools have sufficient knowledge in planning and designing work on the education of patriotism. However, experts working in this field do not use folklore enough to foster patriotism in a younger students with hearing impairments. Also, a survey of teachers showed a lack of special didactic materials, teaching aids, folklore, selected taking into account the age and characteristics of younger students with hearing impairments, contributing to the education of patriotism in them.

CONCLUSIONS

Folklore plays an important role in fostering patriotism in a younger student with hearing impairments. The presented analysis of the scientific and methodological literature on the problem under study indicates that the education of patriotism today firmly occupies a leading place in the system of education and upbringing of younger schoolchildren with hearing impairments. From these positions and when creating certain conditions for the education of patriotism, folklore is considered the most effective means of social rehabilitation of a younger student with hearing impairments.

Thanks to the work of teachers and educators of special schools, some experience has been gained in organizing and conducting patriotic events for younger students with hearing impairments. At the same time, the insufficient use of experimental and scientific-methodological approaches to solving these problems negatively affects the entire system of educational work on patriotism in a special school.

The experimental work carried out by teachers and educators of the special school made it possible to identify the importance of folklore and the peculiarities of its use by teachers in the education of patriotism among hard-of-hearing younger schoolchildren. In accordance with the purpose of the problem under study, a questionnaire was prepared and conducted to identify the ideas of teachers and educators about folklore, its role in the education of Primary School students with hearing impairments in patriotism and their opinions on the problem under study.

As a result, the study of the practice of education of patriotism in these schools showed that, despite the fact that the educational work of patriotism is given an important place, the use of folklore in this work is carried out without taking into account age and individual characteristics. This area requires further study.

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A COMPARATIVE STUDY OF CONTINUING PROFESSIONAL DEVELOPMENT FOR SPEECH THERAPISTS AND TEACHERS IN ARMENIA AND BEYOND

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ABSTRACT

The objective of this research project is to present a comprehensive examination of the disparities in continuous professional development (CPD) for speech therapists and teachers. The consequences for service quality and professional standards within these two critical disciplines will be the primary focus of the analysis. As mandated by the regulatory framework, teachers in Armenia, for example, must participate in continuing professional development (CPD) programs to maintain their professional qualifications. On the other hand, speech therapists are not subject to the same responsibilities, which causes significant differences between the two professions in terms of the development of skills and the ongoing of their education.

This study compares the consequences of several continuing professional development requirements, shared professional practices, and relevant government laws. A critical analysis of the quantitative and qualitative pros and cons of mandating continuing professional development (CPD) for speech therapists is conducted. To support this review, empirical evidence has been gathered via interviews with important stakeholders and a comprehensive study of the present accessible knowledge.

These findings highlight the urgent need for a more organized and coherent continuous professional development (CPD) framework particularly designed for speech therapists, that conforms with the professional development policies set for teachers, and that is more consistent. Additionally, this research offers specific recommendations that are designed to enhance legislative structures to increase the opportunities for continuing professional development (CPD) in both professions. The suggested projects are meant to improve the quality of services and professional knowledge in speech therapy as well as to guarantee that every professional working in Armenian educational and therapeutic environments satisfies high criteria of competence. The communities they serve will eventually gain from this. This will be achieved by fostering a culture of ongoing professional development.

Keywords: *Speech therapists, teachers, Armenia, educational policy, comparative analysis, Continuing Professional Development (CPD), speech therapy, teacher training, professional development framework, service quality, regulatory standards, professional standards, teacher certification, rural vs. urban disparities, international standards, educational reform.*

INTRODUCTORY REMARKS

Continuous Professional Development (CPD) Definition

Continuing Professional Development (CPD) is a continuous process of professional learning that enables individuals to enhance and maintain their competencies, knowledge, and skills. For example, Cameron and Baker (2020) argue that engaging in continuing professional development (CPD) allows professionals to remain informed about the most recent advancements and optimal procedures in their respective fields, thereby ensuring the provision of exceptional service. Formal training courses, informal learning opportunities, seminars, workshops, and pragmatic chances for hands-on experience constitute among the several forms of CPD (Day, 2021). In fields including education and healthcare, constant professional development (CPD) is acknowledged as a basic component of professional responsibility helping people to adapt to the changing needs of consumers and industry norms (Hoffman et al., 2019).

The Importance of Continuous Professional Development for Speech Therapists and Teachers

Particularly in underdeveloped parts of Armenia, the development of education and the enhancement of society depend on speech therapists and instructors. These professionals routinely interact with children who have trouble in communicating and learning, hence they need a strong basis of knowledge and skills (Armenian Ministry of Education, 2022.). Since it enables practitioners to adequately manage the demands of their clients and preserve their knowledge, both professions depend on continuous professional development (CPD).

Constant professional development (CPD) can help one to stay current with the most recent findings and treatment techniques in the domains of language development, dysphagia, and autism spectrum disorders (Kirkpatrick et al., 2021). Similarly, ongoing professional development (CPD) helps teachers to better mix new teaching tools, classroom management tactics, and state-of-the-art technologies. Ultimately, this continuous professional development fits the national educational improvements aimed at improving the quality of education and elevating the academic performance of Armenian students (Hayes, 2018). This study intends to examine the CPD practices of speech therapists and teachers in Armenia. Analyzing the parallels and contrasts between speech therapy and teaching will

enable this study to provide a perceptive assessment of how CPD support in both significant domains may be enhanced. The results can direct policy proposals designed to foster a more ordered and inclusive attitude to professional development and serve to shift the debate on continuous professional development (CPD) in Armenia.

REVIEW OF PRIOR RESEARCH

An Overview of the Practices Used in Speech Therapy for Continuing Professional Development

Speech therapists engage in a diversity of continuing professional development events to enhance the efficacy of their treatments and their clinical skills. These activities, which encompass online courses, conferences, peer collaboration, and seminars, are facilitated by professional societies, academic institutions, and healthcare organizations (Tate & Gibbons, 2021). Established as an informal association of experts offering chances for ongoing professional development (CPD), the Armenian Association of Logopedists came first in April 2018. They provide necessary trainings to ensure the effectiveness of therapeutic interventions.

One of the main reasons speech therapists should participate in ongoing professional development (CPD) is the inclusion of the most recent studies into clinical practice. This is particularly true in the domains of neurolinguistics and cognitive therapy, where practitioners are required to be informed on the most recent advancements to enhance patient treatment (Barker et al., 2019). Moreover, research suggests that consistent attendance in continuous professional development events could lead to improved therapy outcomes, more patient satisfaction, and more therapist confidence (Harrison et al., 2020)..

A Comprehensive Examination of the Methods Implemented in Classroom Continuing Professional Development

Teachers in Armenia are mandated to participate in a diverse array of professional learning programs as part for their ongoing professional development (CPD) obligations. The Ministry of Education, Science, Culture, and Sport of Armenia (2021) is a crucial component in the management of continuing professional development (CPD) programs, frequently collaborating with non-governmental organizations (NGRs) and international educational institutions.

To increase student engagement and educational outcomes, teachers routinely give crucial areas including classroom management, personalized instruction, and curricular changes - top priority (Smith & Johnson, 2021). As such, they frequently focus on continuing professional development (CPD).

Nevertheless, challenges persist that have the potential to impede the efficacy of continuing professional development for educators. Roberts et al. (2018) have reported that a lack of resources and restricted access to high-quality training, particularly in rural areas, are issues that contribute to the overall absence of structured continuing professional development (CPD) paths. These kinds of challenges can lead to inequalities in professional development experiences, which can then influence the quality of education in many different contexts.

An Evaluation of Different CPD Approaches Comparatively

Methods of ongoing professional development (CPD) for speech therapists and educators are significantly different, a manifestation of the unique requirements and circumstances of each profession. Speech therapists are frequently engaged in continuing professional development (CPD) programs that emphasize clinical abilities and therapeutic techniques. These programs frequently incorporate workshops that focus on specific topics, such as the enhancement of children's speech and language development and the resolution of cognitive-communication challenges. Such sessions are frequently organized through a combination of international conferences and in-person seminars to provide participants with the opportunity to acquire in-depth knowledge that is relevant to their clinical practices (Johnson et al., 2019).

On the other hand, educators are more inclined to engage in ongoing continuing professional development (CPD) programs that encompass a broader array of educational topics. These initiatives may involve the implementation of innovative pedagogical strategies, inclusive education concepts, and technology. The development of new teaching approaches is frequently emphasized in the continuing professional development (CPD) that educators receive, which may be less specialized than the training that speech therapists receive (Chen & Tzeng, 2020). Although this multifaceted approach is beneficial in fostering a comprehensive comprehension of contemporary educational methods, it may occasionally lead to a reduction in subject matter expertise.

Research has demonstrated that both categories can benefit from continuous professional development (CPD); however, the specific approaches can have varying effects on service delivery and professional development. For example, research has shown that speech therapists can enhance their clinical competencies by implementing skill-specific training that is tailored to specific skills. This, in turn, enhances their ability to implement effective interventions (Rees et al., 2019). Conversely, educators who engage in more comprehensive professional development initiatives may encounter challenges in consistently integrating newly acquired strategies into their classrooms, particularly when they are not provided with ongoing support (Vescio et al., 2018).

Continuing professional development (CPD) techniques' efficacy is contingent upon the contextual relevance of the learning experiences and the alignment of training with the requirements of practitioners. Consequently, it is imperative to adopt a specialized approach to continuing professional development (CPD) to optimize the potential of both professions and ensure the highest standards of practice in speech therapy and education.

As part of the professional development process, the identification of common obstacles;

Due to widespread budgetary constraints and geographical obstacles, speech therapists and instructors have limited opportunities for continuing professional development (Vescio et al., 2018). This is the case in both educational and occupational environments. This scarcity exacerbates the challenge faced by professionals in both fields in obtaining access to training that meets the highest academic standards. Even though speech therapists and teachers operate in distinct environments, they both encounter comparable obstacles in the realm of continuing professional development (CPD). The efficacy of continuing professional development (CPD) programs in terms of enhancing practice and addressing professional demands is significantly influenced by the relevance and application of training content. Continuing professional development (CPD) may not yield substantial improvements in the skills of professionals or the services they provide to students or clients if it fails to align with the reality that professionals encounter daily (Cameron & Baker, 2020).

RESEARCH METHODOLOGY DEVELOPMENT

To provide a comprehensive understanding of the practices of continuing professional development (CPD) among speech therapists and teachers in Armenia, this study employs a mixed-methods research strategy that integrates qualitative and quantitative research protocols. This method enables the examination of the subjective experiences of the participants in a nuanced manner, as well as the identification of measurable patterns that pertain to the availability and influence of continuing professional development (Creswell & Poth, 2018).

On November 1, 2022, surveys were distributed to speech therapists and instructors throughout Armenia. These surveys inquired about barriers to participation, satisfaction, and CPD options. To gain a more comprehensive understanding of the CPD experiences of professionals, in-depth interviews were also conducted. "The questionnaires were sent to teachers and speech therapists all throughout Armenia; the actual count of participants who got and applied them is not mentioned in the sources. Local associations for children with disabilities were among the fresh knowledge that Armenian caregivers, teachers, and school staff members discovered via the resources given. (Natasha et al., 2022)

THE TECHNIQUES EMPLOYED TO SELECT SAMPLES

The application of the Armav AAC project and the success of the subsequent supervisors

Eight Speech therapists from different areas of Armenia have participated in the application course of the Armav AAC project, which was conducted by logopedists Armenuhi Avagyan, PhD (developer of the Armav AAC project, child psychologist, logopedist) and Taline Ashekian (M.S., CCC-SLP/ASDCS, PhD candidate, Co-Owner of the Harmony Speech Therapy & Diagnostics (California, USA), leading expert of the Western Armenian version of the Armav AAC project).

The courses were three days long and included comprehensive information on communication assessment, alternative communication methods, the use of advanced technological tools, and the MASTER PAL methodology. They were enriched with theoretical and practical knowledge, videos, group work, and experiments.

The participants also had one online supervision session per month for three consecutive months. The supervisors were the same instructors. In general, the evaluation included matrix completion, application of project functions, modeling, the expert as a communication partner, interdisciplinary activities, feedback, provision of assistance/reminders, and the opportunity for the participants to speak with the instructor before the next session. At the end of each supervision, the participants received recommendations and demonstrations.

Finally, the instructors prepared the evaluation form for the course/instructors' evaluation, which was sent to the participants. The analysis of the forms showed that the participants of the course and the supervisors highly appreciated the work in the specified format.

One participant writes, "The comprehensive information was very useful, including information on child development, evaluation criteria for communication, verbal communication, and the combination of high and low technological tools." Another participant notes, "The work was very productive. First, the transfer of visual knowledge, then online supervisions were discussed in detail and corresponding demonstrations were provided. It was suggested that the program would continue to provide continuous benefits. Since the child is attending school and working with teachers, teacher assistants, and other experts, it would be desirable for them to be informed or trained about the program."

The supervision also involved other experts, teachers, and parents who interact with children. They also demonstrated the application of the Armav AAC program, showing how it can be used in their daily routines, performing educational and purchasing activities.

The course instructors confirm the significant progress of the experts, who have been able to apply a wider and more effective range of high technologies in their work.

Thus, the course format significantly improved the participants' skills and ensured high efficiency.

The format of education was unique in Armenia. For the first time in this field, educational programs were followed by scientific-technical support, various supervisions. Managers and educators confirm the great success of experts, who can apply the latest technologies more widely and effectively in their work. Participants who were engaged in continuing professional development were selected through purposive sampling techniques. This approach guaranteed a diverse array of experts, each of whom possessed a diverse set of experiences and backgrounds in Armenia, particularly in urban and rural regions. This diversity enables a comprehensive examination of the ways in which geographical and contextual factors influence the efficacy and involvement of continuing professional development (CPD) (Tate & Gibbons, 2021).

COMPARISON OF CONTINUING PROFESSIONAL DEVELOPMENT OPPORTUNITIES FOR SPEECH THERAPISTS AND TEACHERS: OUTCOMES

In Armenia, speech therapists and teachers have access to a diverse array of continuing professional development (CPD) opportunities. However, the nature of these opportunities and the way they are presented differ significantly between the two professions, as indicated by the results. Usually, speech therapists engage in specialized training sessions that underscore the significance of advanced clinical skills and concentrate on treatment strategies associated with language development and fluency issues (Harrison et al., 2020). These specialized training programs are frequently funded by international organizations, individuals, or local institutions that have connections to the healthcare sector to ensure that practitioners are always informed about the most recent evidence-based procedures.

Conversely, educators opt for continuing professional development (CPD) programs that encompass a broader spectrum of educational concerns, including curriculum innovations, inclusive education strategies, and classroom management strategies. On the other hand, the accessibility of these opportunities is highly disparate. Teachers employed in urban areas generally have significantly greater access to continuing professional development (CPD) resources than their counterparts in rural areas, who frequently depend on online courses or training provided by non-governmental organizations (NGOs). Regrettably, it is feasible that these products are not consistently customized to accommodate the unique requirements of the individuals or the obstacles they encounter in their respective regions (Hayes, 2018).

THE EFFECTIVENESS OF CONTINUOUS PROFESSIONAL DEVELOPMENT IN BOTH FIELDS

According to the data, speech therapists generally report higher levels of satisfaction with the

continuing professional development opportunities that are available to them. This is noteworthy in terms of its efficacy. On May 11, 2024, more than a dozen Armenian speech therapists from Armenia were invited to participate in the Communication Always Matters All Ways (CAMA) annual online conference among hundreds of international participants. Numerous Armenian speech therapist's participants reported that their clinical practice was significantly improved as a direct consequence of participating in specialized training sessions, particularly those that concentrated on innovative therapeutic methods in the alternative and augmentative communication (AAC) world.

Participation in international conferences further enriches professional development by offering professionals the opportunity to network with other professionals and gain exposure to innovative approaches that are being used in other settings (Kirkpatrick et al., 2021).

Conversely, educators frequently express their dissatisfaction with the relevance of continuing professional development (CPD) programs. The seminars that were offered were predominantly theoretical and did not offer any immediate practical application for the teaching situations of many individuals, according to their reports. This discrepancy is particularly evident among educators employed in rural areas, as the content of continuing professional development (CPD) fails to adequately address the distinctive challenges that are linked to restricted access to resources and materials. There is a growing demand for continuing professional development (CPD) programs that are more tailored to the actual working conditions that teachers encounter (Smith & Johnson, 2021).

The research's results underscore the significance of continuing professional development frameworks that can recognize and accommodate the distinctive challenges and demands that speech therapists and instructors encounter. Ultimately, this alignment will enhance the quality of professional development and, as a result, the efficacy of the services provided to consumers and students.

THE SATISFACTION OF EDUCATORS WITH CONTINUING PROFESSIONAL DEVELOPMENT

Conversely, educators frequently express their dissatisfaction with the relevance of continuing professional development (CPD) programs. Numerous individuals have indicated that continuing professional development (CPD) seminars are exceedingly academic and fail to offer any practical solutions that could be readily implemented in their classrooms. This divergence is most pronounced among educators who operate in rural areas, as per the research conducted by Chen and Tzeng in 2020. These educators encounter challenges that are associated with restricted resources and materials. Educators underscore the significance of continuing professional development (CPD) that is customized to their specific work environment and aligns with their current working conditions. They

require training that addresses practical challenges, including the effective integration of technology into their teaching practices, the diverse needs of learners, and the large class sizes, as per Roberts et al. (2018).

DETECTING OBSTACLES AND CHALLENGES IN THE PATH OF PROFESSIONAL DEVELOPMENT

Speech therapists and educators have both reported that they encounter a variety of challenges that impede their ability to engage in ongoing professional development courses. Individuals who are employed by public organizations with restricted budgets for continuing professional development initiatives encounter substantial financial constraints (Vescio et al., 2018). The demanding responsibilities of both instructors and therapists make it difficult to attend continuing professional development (CPD) programs consistently. The situation is further complicated by the existence of time constraints.

Another challenge is the geographic limitations that are particularly challenging to surmount for professionals who are employed in rural areas and have limited access to in-person training. Cameron and Baker's 2020 research indicates that a substantial number of educators and clinicians are compelled to resort to online continuing professional development (CPD) resources, which may not provide the same level of engagement and connection as traditional face-to-face learning sessions.

IMPLICATIONS FOR SPEECH THERAPY AND COMMUNICATION THERAPY EDUCATION

Significant implications can be deduced from the results of this investigation regarding the implementation of speech therapy and teaching methodologies in Armenia. Speech therapists must pursue continuing professional development (CPD) that is both evidence-based and highly specialized to maintain high standards of service. To achieve this, it is imperative to integrate training that not only addresses the most recent advancements in therapy but also considers the demographic and cultural intricacies that are prevalent among the Armenian population (Harrison et al., 2020). There is a substantial demand for a broader range of materials and training programs that are available in the Armenian language and that specifically address the challenges that are currently present in the country's healthcare system.

In contrast, educators require continuing professional development (CPD) programs that are not only pertinent but also directly related to the challenges they encounter in their classrooms. Continuing professional development (CPD) must provide tangible solutions for effectively managing large class

sizes, integrating technology within the constraints of limited resources, and addressing the requirements of learners from a variety of backgrounds. The utilization of online platforms or the development and implementation of mobile training units can help alleviate some of the geographical constraints that were identified in this research (Smith & Johnson, 2021). This study was conducted from the perspective of instructors who operate in regions with restricted resources.

STRATEGIES FOR ENHANCING CONTINUOUS PROFESSIONAL DEVELOPMENT IN BOTH FIELDS

To improve the continuing professional development (CPD) of speech therapists, professional associations and training providers should establish a greater number of resources in the Armenian language and develop locally customized training programs. CPD opportunities that are closely aligned with the specific requirements of speech therapists practicing in Armenia could be established through collaborations with local healthcare facilities and educational institutions. Advocating for increased funding for CPD initiatives, particularly for therapists employed in public healthcare environments, may be necessary to address the financial obstacles identified in this study (Kirkpatrick et al., 2021).

Educators should be provided with CPD programs that are tailored to address the practical and distinctive obstacles encountered in the Armenian educational system. This could encompass instruction on effective teaching strategies for multi-grade classrooms, strategies for engaging students with limited access to technology, and methods for integrating Armenian cultural history into the curriculum. The accessibility of CPD for educators in rural areas can be improved by utilizing mobile training units and online platforms. Additionally, to facilitate the successful implementation of new strategies, instructors should prioritize the development of mentorship opportunities and the promotion of peer collaboration (Roberts et al., 2018).

AREAS OF POTENTIAL RESEARCH

Future research could concentrate on longitudinal studies that evaluate the long-term influence of continuing professional development (CPD) on professional practice in both speech therapy and education. Specific outcomes, such as enhancements in therapeutic efficacy, student learning outcomes, and overall professional satisfaction, could be monitored over time through such investigations (Cameron & Baker, 2020). Furthermore, investigating the potential impact of CPD on patient outcomes for speech therapists and educational practices for teachers provides valuable insights into the efficacy of CPD initiatives and informs future enhancements.

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EVALUATING THE EFFICACY OF MUSCLE STIMULATION IN THE MANAGEMENT OF DEGENERATIVE-DYSTROPHIC CHANGES IN THE CERVICAL SPINE

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ABSTRACT

Degenerative-dystrophic changes in the cervical spine are a common cause of chronic pain and functional impairment, affecting millions of individuals globally. These conditions often result in reduced mobility, muscle atrophy, and declining quality of life. In recent years, muscle stimulation has emerged as a promising adjunctive therapy to improve muscle function and alleviate symptoms. This study evaluates the effectiveness of muscle stimulator application during treating patients with dystrophic-degenerative changes in the cervical spine.

A cohort of 10 patients, aged 40-50, diagnosed with cervical degenerative conditions, participated in this randomized controlled trial. Participants were divided into two groups: one receiving conventional physical therapy alone and the other receiving combined therapy using a muscle stimulator targeting the cervical musculature. Over a 12-week intervention period, both groups were assessed using the Visual Analog Scale (VAS) for pain, the Neck Disability Index (NDI), and electromyography (EMG) to measure muscle activity.

These findings suggest that muscle stimulator application is a valuable adjunct to conventional therapies, offering a non-invasive and effective means of managing dystrophic-degenerative changes in the cervical spine. Future research should explore the long-term benefits of this intervention and its potential to prevent the progression of cervical spine degeneration.

Key words: *Cervical spine, degenerative-dystrophic changes, muscle stimulation, physical therapy, neck pain, muscle strength, non-invasive therapy, rehabilitation, quality of life.*

RESEARCH RELEVANCE

Dystrophic degenerative changes of the spine, particularly in the cervical region, are highly prevalent worldwide, affecting approximately 50% of the global population, with significant occurrences

in individuals aged 30 to 50 (World Health Organization, 2020). Although these changes do not directly result in mortality, they are often accompanied by intense pain, discomfort, and functional impairment, severely limiting the individual's ability to perform daily activities (Smith et al., 2019). Prompt therapeutic intervention is crucial to prevent further degeneration and to manage symptoms effectively.

In the Republic of Armenia, dystrophic degenerative changes of the spinal motor segments are among the most frequently diagnosed conditions, particularly within the working-age population (Ministry of Health of Armenia, 2018). Neurological clinics report that spinal and joint pathologies constitute a substantial proportion of outpatient consultations (Grigoryan et al., 2017). Studies indicate that lumbar and cervical spine degeneration often result from multifactorial causes, including genetic and environmental influences (Battié & Videman, 2006). The degenerative process primarily involves the deterioration of intervertebral discs, which leads to negative repercussions for adjacent vertebral bodies, intervertebral joints, and ligamentous structures (Battié & Videman, 2006). Degenerative changes are affected by biomechanical and biological factors that influence the intervertebral disc health and surrounding structures (Roberts et al., 2006).

The minimal biomechanical load on the spine is observed in the supine position. However, the modern sedentary lifestyle has contributed to prolonged periods of poor posture, particularly in seated positions, which exacerbate degenerative changes (Schenk et al., 2013).

Several etiological theories have been proposed to explain the onset and progression of dystrophic degenerative spinal disorders, including involutionary, hormonal, vascular, infectious, mechanical, abnormal, and functional theories (Brinckmann & Frobin, 2017). Despite extensive research, no single theory has provided a comprehensive explanation for the multifactorial nature of this condition.

The treatment of cervical dystrophic degenerative changes requires a multidisciplinary approach, involving pharmacological and non-pharmacological strategies. In particular, rehabilitation protocols that incorporate breathing exercises, physical therapy, and self-massage are effective in reducing symptoms and improving functional outcomes (Stemper et al., 2020). The comprehensive selection of physical rehabilitation techniques is essential for achieving successful long-term recovery (Gunzburg et al., 2008).

Based on the mentioned above the **aim of the study** is to examine the effect of physical exercises, a specially designed complex, to compare the effectiveness of parallel use of muscle stimulator and physical rehabilitation in the process of restoring dystrophic degenerative changes in the neck. The **research question** is formulated as follows: *How effective is the application of muscle stimulation, combined with physical rehabilitation techniques such as breathing exercises and self-massage, in improving pain management, muscle function, and overall mobility in patients with cervical dystrophic*

degenerative changes?

The research problems have the following interpretation:

- **Prevalence and Impact of Degenerative-Dystrophic Changes:** The high prevalence of degenerative-dystrophic changes in the cervical spine, affecting nearly half of the global population, particularly within the working-age demographic (ages 30-50), leads to chronic pain, discomfort, and reduced mobility. This study seeks to explore interventions that could provide effective symptom management and functional recovery.

- **Lack of a Unified Etiological Framework:** Despite the various theories explaining the causes of dystrophic degenerative changes (involutionary, hormonal, vascular, mechanical, etc.), no singular theory fully encapsulates the multifactorial nature of the disorder. As a result, treatment strategies remain broad, and this study aims to assess the efficacy of combining muscle stimulation with established physical therapy approaches to manage symptoms more effectively.

- **Complexity of Treatment Approaches:** The current treatment of cervical dystrophic degenerative changes is complex, often requiring a multidisciplinary approach. The need to evaluate the benefits of integrating muscle stimulation with traditional methods like breathing exercises and self-massage is crucial for optimizing patient recovery. This research addresses the gap in understanding whether these combined interventions yield superior outcomes compared to traditional methods alone.

- **Need for Effective Non-Invasive Interventions:** Given the debilitating nature of cervical dystrophic degenerative changes, there is a pressing need for non-invasive, effective interventions that can be easily implemented in clinical and home settings. This study investigates whether muscle stimulation can enhance the effectiveness of non-pharmacological rehabilitation techniques, improving pain reduction and muscle recovery.

METHODS

To gather and analyze relevant data for this study, a thorough review of the professional literature on cervical dystrophic degenerative changes was conducted. A sample of 10 female participants, aged 40-50, was selected for the clinical trial. The participants were divided into two groups. The first group underwent rehabilitation using exclusively developed exercises and self-massage techniques, while the second group received the same rehabilitation exercises with the addition of muscle stimulator sessions. This experimental design was structured to assess the differential impact of adding muscle stimulation therapy to traditional rehabilitation methods (see Tables 1 and 2).

Data Analysis

The rehabilitation program was specifically developed for patients diagnosed with dystrophic

degenerative changes of the cervical spine in the subacute phase. The 10 women who participated in the study were divided into two groups, each following a different rehabilitation protocol. The first group followed a regimen of targeted rehabilitation exercises and self-massage, while the second group included additional sessions with a muscle stimulator. All participants were in the subacute phase of their condition.

To evaluate the effectiveness of the rehabilitation exercises, a preliminary functional-motor test was conducted, assessing the severity of cervical muscle damage, based on the G.A. Goryano scale. Participants' neck muscle conditions were evaluated quantitatively using a point-based scoring system, with the results outlined in Table 1. This standardized approach allowed for a comparative assessment of muscle recovery between the two groups, providing objective data on the efficacy of muscle stimulation as an adjunct therapy in cervical spine rehabilitation.

Table 1.

The primary results of the functional-motor test of the neck muscles of the subjects (according to G.A. Goryano).

№	Person's code	Evaluation of the test task with points				Amount of points	The level
		Stand straight and tilt your head as far as possible (chin down)		Tilt the head as far as possible to the right, trying to touch the shoulder with the ear (the shoulders should be still)			
		Right	Left	Right	Left		
1	001	4	4	4	5	17	Average
2	002	4	5	4	2	15	Average
3	003	4	5	4	5	18	Average
4	004	2	2	4	2	10	Low
5	005	4	4	4	4	16	Average
6	006	4	2	4	4	14	Average
7	007	2	2	2	4	10	Low
8	008	2	2	4	2	10	Low
9	009	5	2	2	2	11	Average
10	010	2	4	2	4	12	Low

Table 1 demonstrates that at the onset of the study, 60% (6 participants) exhibited an average level of cervical muscle function, while 40% (4 participants) presented with a low level of cervical muscle

function. In addition to assessing muscle functionality, we conducted a quantitative evaluation of the participants' pain perception. This was achieved using a verbal description pain questionnaire, which categorized the severity of pain experienced by participants. The pain syndrome was classified based on a scale where: a score of 4 indicated moderate pain, 6 indicated severe pain, 8 represented very severe pain, and 10 corresponded to unbearable pain. This scale provided a standardized method to quantify the subjective experience of pain, allowing for a clearer understanding of the participants' discomfort levels at the start of the rehabilitation process.

Table 2.

Pain syndrome quantification preliminary assessment results.

№	Person's code	Pain sensation	Level of pain syndrome
1	001	4	Moderate pain
2	002	2	Mild pain
3	003	4	Moderate pain
4	004	8	Very strong pain
5	005	4	Moderate pain
6	006	4	Moderate pain
7	007	6	Severe pain
8	008	6	Severe pain
9	009	6	Severe pain
10	010	6	Severe pain

The data presented in Table 2 indicate that all participants with dystrophic degenerative changes in the cervical spine experienced varying levels of pain syndrome (Table 2). To address these issues, all study participants underwent a structured physical rehabilitation program over a period of three months. The rehabilitation protocol was specifically designed to target the cervical and thoracic spine, as well as the upper limb regions, to improve muscle strength, spinal mobility, and vestibular function.

Each session lasted 60 minutes and was conducted three times a week for six months. The exercise regimen developed for this study emphasized neck muscle strengthening and stretching, with an additional focus on enhancing overall spinal mobility and upper body function. The rehabilitation method was divided into the following structured phases:

Preparatory Phase (10 minutes): This phase involves general developmental exercises and various forms of walking, aimed at preparing the body for more intensive physical activity. This part includes organizing and forming a group for lessons. Also, complex exercises for general development,

various types of walking, in particular, were used:

- walking with various hand movements that develop shoulder girdle muscles and joint mobility (circular movements);
- walking by raising the legs straight, bent at the knee joint;
- walking on an inclined plane, gymnastic stick, carpet, heels and toes;
- walking at different pace and in different directions (back forward).

Main Phase (25 minutes): This phase was composed of two key components: (1) a 10-minute segment of specially designed breathing exercises to improve respiratory function and neuromuscular control, and (2) a 15-minute segment of general strengthening exercises focusing on the cervical spine and upper limb muscles.

This phase with a duration of 25 minutes begins with breathing exercises (10 minutes) to activate blood flow to all organs and involve all parts of the body in the work, affecting the spine "from the inside".

Then the main part includes specially selected exercises (15 minutes) aimed at strengthening and stretching the neck muscles, improving the mobility of the spine in the cervical and thoracic spine and the upper limb zone, and restoring the vestibular system.

Final Phase (10 minutes): This phase included slow walking exercises aimed at reinforcing proper posture and a session of self-massage to promote relaxation and enhance muscle recovery. In this part, self-massage was applied. Self-massage was performed for 3-5 minutes on the head and neck area to relieve tension after a series of exercises. The movements were performed from top to bottom, light stroking and fingertip massages were used. In group 1, along with the complex of rehabilitation exercises and self-massage, we used muscle stimulator sessions. Duration 15-20 minutes. At the end of the study, a final functional assessment was performed. A comparison was then made with the original data (Table 3, 4, 5, 6).

Table 3.

The final results of the functional-motor test of the neck muscles of the subjects (group 1 using a muscle stimulator).

№	Person's code	Evaluation of the test task with points				Amount of points	The level
		Stand up straight and turn		Tilt the head as far as possible to the			
		your head as far as		right, trying to touch the shoulder with			
		possible (chin down)		the ear (the shoulders should be still)			
		Right	Left	Right	Left		

1	001	5	5	6	5	21	High
2	003	5	6	5	4	20	High
3	007	6	6	5	6	23	High
4	009	4	4	5	4	17	Average
5	010	5	5	5	5	20	High

Table 4.

Final results of pain syndrome quantification (muscle stimulator use) - Group 1

№	Name	Pain sensation, in scores	Level of pain syndrome
1	001	0	No pain
2	003	0	No pain
3	007	0	No pain
4	009	2	Mild pain
5	010	0	No pain

Table 5.

Final results of the functional-motor test of the neck muscles of the subjects - Group 2

№	Person's code	Evaluation of the test task with points				Amount of points	The level
		Stand up straight and walk around as much as possible head (chin down)		Chapter as much as possible turn right aspiring with the ear tap on the shoulder (shoulders should be still)			
		<i>Right</i>	<i>Left</i>	<i>Right</i>	<i>Left</i>		
1	001	5	4	4	4	17	Average
2	003	4	4	4	4	16	Average
3	007	4	4	5	4	17	Average
4	009	5	4	4	4	17	Average
5	010	5	4	4	5	18	Average

Table 6.

The definitive quantitative assessment of pain syndrome results - Group 2

№	Name	Pain sensation, in scores	Level of pain syndrome
1	002	0	No pain
2	004	0	No pain
3	005	4	Moderate pain
4	006	0	No pain
5	008	0	No pain

In summarizing the research findings, it is evident that there was a marked improvement in the functional outcomes of participants in Group 1, who underwent rehabilitation without the addition of muscle stimulation. Importantly, no deterioration in the functional status of any participants was observed following the intervention. According to the data, the majority of participants reported the absence of pain syndrome, with only a small subset experiencing mild to moderate pain.

Furthermore, participants in Group 2, who received the additional muscle stimulation therapy, also demonstrated positive outcomes. The comparative analysis between the two groups highlights the superior efficacy of a comprehensive physical rehabilitation program when combined with muscle stimulation. These findings provide empirical evidence supporting the effectiveness of an integrated rehabilitation approach for managing dystrophic degenerative changes in the cervical spine. Specifically, the adjunct use of muscle stimulation appears to enhance therapeutic outcomes, reinforcing the value of this combined intervention in clinical practice.

CONCLUSION

The objective of this study was to identify the essential prerequisites that physiotherapists need to plan and execute effective interventions for patients with dystrophic degenerative changes in the cervical spine.

- A comprehensive review of the literature confirmed that cervical dystrophic degenerative changes are among the most prevalent health concerns in modern clinical practice in the Republic of Armenia.
- Muscle stimulation therapy has emerged as a widely accessible and frequently used treatment modality for managing dystrophic degenerative changes in the cervical spine.
- The findings from this study indicate that a specially designed physical rehabilitation program, when combined with self-massage techniques, is highly effective in managing symptoms associated with this condition.

• Furthermore, integrating muscle stimulator sessions with traditional rehabilitation measures resulted in significant reductions in pain perception and improvements in functional mobility for the majority of the participants.

These findings underscore the critical factors that must be considered when planning and implementing physiotherapeutic interventions for patients with cervical dystrophic degenerative changes. By addressing these factors, healthcare professionals can help individuals achieve maximum functional independence, ensure their safety, and promote their active participation in daily life.

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ASSESSMENT OF THE THICKNESS OF THE SKIN-FAT LAYER IN SCHOOLCHILDREN OF DIFFERENT AGE GROUPS

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ABSTRACT

The rise in overweight and obesity among school-age children is currently one of the most serious

public health problems. With the progress of science and medicine, obesity and the development of various problems caused by it are widespread among schoolchildren and adults in general. In this sense, as a serious problem of medical science, it is alarming and relevant (Calonje Eduardo et. al, 2020). Obesity, as one of the diseases of civilization, is the result of hypodynamia, a disturbance of fat metabolism in the body, which leads to excess weight gain. ("Obesity and overweight Fact sheet N°311".WHO. January 2015. Retrieved 2 February 2016). In this sense, it is important to take into account the age period, and the deviations observed during normal development because each age period has its characteristics of fat metabolism. It has been shown that female schoolchildren of middle school age have a higher rate of obesity, which is not only determined by gender but also by age and body composition or somatotype. Middle and high-school-aged female schoolchildren have a peripheral type of obesity, that is, fat is predominantly stored in the subcutaneous tissue of the thighs, abdomen, and buttocks. It has been shown that there is a clear correlation between fat metabolism and somatotype in middle and high school children.

The results of the study suggest that physical activity should be part of a comprehensive weight loss therapy program and weight control strategy since it promotes excess weight loss and its sustainable maintenance, for which it is important to regularly monitor indicators of subcutaneous fat thickness and the relative content of adipose tissue throughout the body

Keywords: *physical activity, relative fat content, skin-fat layer assessment, schoolchildren, obesity, overweight, fat metabolism, age groups, somatotype, subcutaneous fat, weight control strategy.*

INTRODUCTION

As a result of a violation of the process of fat exchange in the body, obesity begins, which is considered a disease state and damages health (WHO. January 2015. Retrieved 2 February 2016). The World Health Organization defines obesity as the excess accumulation of adipose tissue, which can be assessed by determining the body mass index (Body Mass Index, BMI) (Anisimova A.V., 2020), the latter is based on body weight and height data. It has been shown that the body mass index in the norm is 18.5-24.9 kg/m² and the increase of the latter up to 25-29 kg/m² almost doubles the probability of developing coronary heart disease.

It has been confirmed that both boys and girls correlate with a sedentary lifestyle and changes in qualitative indicators of adipose tissue. A decrease in physical activity (PA) or lack of it in general creates various problems developing in the body (Calonje Eduardo, et al., 2020): In the case of regular PA, it is possible to ensure a moderate thickness of the fat layer (Ługowska et al., 2022).

Adipose tissue also plays a role in metabolic health and aging, affecting various bodily systems

(Yu, Yuan, Yang, & Qi, 2019). It is known that the white and gray types of adipose tissue act as an endocrine gland, the latter synthesize adipokines that influence metabolic, inflammatory and immune processes (Khudaverdyan D.N., 2020). The obesity gene, which is responsible for the synthesis of the hormone leptin and ensures energy balance by suppressing the feeling of hunger, is also important in the disturbance of fat metabolism in the body (Timasheva et al., 2021). Obesity is also caused by low physical activity, abuse of food, its qualitative composition, heredity, as well as disorders of the endocrine system. Urbanization of the population may also be a cause of obesity (Melnik, 2021). Genetic factors also significantly impact susceptibility to obesity, as well as other metabolic disorders (Timasheva, Balkhiyarova, & Kochetova, 2021).

Each age period has its characteristics of fat metabolism, the latter is caused by changes in the functional significance of fats during ontogenesis. In early childhood, compared to adulthood, the intensity of fat metabolism is 50% higher (Ayzman et al., 2021). From infancy to 20 years, the intensity of fat metabolism decreases by 3% per year. Between 20 and 60 years this figure levels off, and after 60 years it gradually decreases by 0.7%. It has been shown that with age, and also depending on gender, there are highly pronounced changes in the abdominal fat wall thickness (FWT) (Jourdan et al., 2020). Studies have shown that the accumulation of body fat varies with age and activity levels, influencing overall health and body composition (Melnik, 2021; Ługowska & Kolanowski, 2022).

A caliper is used to determine the volume of subcutaneous fat. Since the FWT is distributed differently in different parts of the body, when evaluating the FWT with the help of calipers, they rely on FWT measurements under the skin from 4-10 points of the body, after which the obtained results are calculated in millimeters and compared with the height and weight of the subject. And with the help of special formulas, the relative content of body fat (RBF) is derived. Calipers provide a standardized method for body fat measurement, essential in assessing body composition accurately (How to Determine Body Fat Content Using a Caliper, n.d.).

The localization of subcutaneous fat tissue and the degree of FWT depends not only on age, and gender but also on individual anthropometric indicators. It has been shown that with age, and also due to gender, the FWT of the abdominal wall undergoes highly pronounced changes (Jourdan et al., 2020; Akazawa, et al., 2021):

In the region, the statistical data on the FWT index among school-aged students are solid, so in the presented work, an attempt was made to investigate the 4 age groups of about 16 schools of the Vayots Dzor marz of the RA, particularly elementary, middle and senior school-aged students, in both sexes, body 4 different parts (including - muscle pelvic girdle suprailiacus (MPGS), muscle obliquus externus abdominis (MOEA), muscle subscapularis (MS), muscle triceps brachii (MTB)), and also to identify the

trend of obesity in the latter as a process detrimental to public health. In this regard, a problem has been posed.

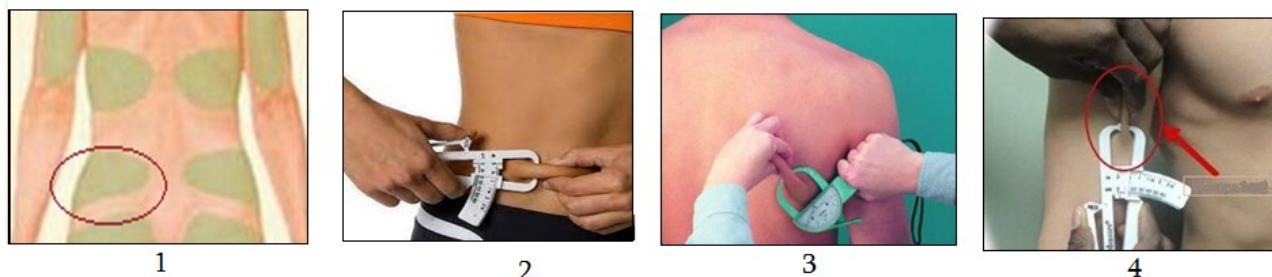
- To assess body height, mass, pelvic girdle, and chest circumferences with the help of anthropometric measurements in schoolchildren of both sexes of different age groups.
- To assess the FWT of the skin of 4 different body sites in schoolchildren of both sexes of different age groups with the help of calipers.
- Based on the anthropometric indicators and calipers estimated from 4 different points, calculate the skin mass index of all schoolchildren who participated in the research.
- To find out in which age group the risk of obesity is most pronounced, intergroup comparisons of FWT and RBF rates were made between different age groups.

METHODOLOGY

The research was carried out in about 16 schools of the Vayots Dzor region of the Republic of Armenia (RA). About 1320 schoolchildren of different age groups were examined. It should be noted that the entire course of research was carried out in accordance with the Declaration of Helsinki on the ethical norms of medical research involving human subjects (Ethical Committee of the Heratsu Yerevan State Medival University (N12-1/22)). The participation of schoolchildren was voluntary. Before carrying out the research, the purpose of the research and the actual technical process of the measurements were explained to all schoolchildren. After anthropometric measurements in schoolchildren of different age groups and estimation of the average thickness of skin folds from 4 different points of the body with the help of calipers (Picture 1), the average thickness of skin folds and also the absolute amount of fat in the body were determined using the formulas proposed by Mateika and known in the public literature. (Anisimova, 2021): In the whole organism, the indicator (expressed as a percentage) of the RBF was evaluated in the sum of the results of all 4 observed sites.

Picture 1.

Superficial muscle of the pelvic girdle- MPGS (1), external oblique muscle of the abdominal wall- MOEA (2), subscapular muscle – MS (3), triceps brachii muscle –MTB (4).



The latter also made it possible to find out in which age group, and particularly in which gender, there is a trend of obesity. With the help of the GraphPad Prism computer program (version 5.0), the reliability of the skin FWT results of 4 different sites of the body was evaluated for all age groups and two different sexes. The obtained results were considered statistically significant in the ranges of $*P < 0.05$, $**P < 0.001$ and $***P < 0.0001$:

RESULTS AND DISCUSSION

From the analysis of anthropometric indicators, it was found that, although there is an increase in anthropometric indicators among ES schoolchildren, there are differences between the sexes. In particular, the indicators observed among female schoolchildren of ES are higher compared to male ones. In addition, the fact that the FWT of ES schoolchildren in terms of the indicator is common for some sites is observed, in particular, the FWT of the skin of MS and MTB in the indicator. There is also a commonality in the anthropometric index of height in SS schoolchildren, but compared to males, females have a prominent increase in chest and pelvic girths, as well as proportional skin FWT of MPGS, MOEA, MS, and MTB change, and MPGS and MOEA skin FWT growth is lower in females. This proves that heterochronism, expressed in the processes of growth and development of the body, is weakly expressed, but it is obvious that in both boys and girls of SS age, anthropometric indicators change in connection with puberty, and this proves that girls have almost all fat accumulations concentrated in the pelvic girdle and abdominal wall (Fedotova et al., 2021). A proportional change in the anthropometric index of height is observed among HSA schoolchildren, and commonality is observed in anthropometric indices among 17-year-old schoolchildren of both sexes. Compared to males, females showed an increase in chest and pelvic girths, FWT scores were higher than MPGS, MOEA, MS, and MTB skin FWT scores. This proves that both males and females of HSA have an

increase in anthropometric indicators due to age and puberty (Lysova N.Ph., 2018), and fat accumulation, especially in females, is again concentrated in the pelvic girdle and abdominal wall.

Analysis of FWT and RBF in percentages of the main sites observed in both sexes of schoolchildren of different age groups revealed that ES females had a 0.25% higher than FWT of males' MPGS. FWT of MOEA was 0.21% higher in females compared to males, FWT of MS was 0.38% in males and 0.45% in females, respectively. As for MTB FWT, there is almost no difference between the two sexes (0.53% for males and 0.55% for females).

It turned out that the results of the inter-gender comparison of FWT of the sites presented in ES schoolchildren are reliable, and as for the RBF in ES schoolchildren, it is 0.54% higher in females. (Fig. 3, 4). MPGS FWT was 0.75% higher in females compared to males in SSA, MOEA FWT was 0.71% higher in females compared to males, MS FWT was 0.68% for males and 0.77% for females. As for MTB FWT, the latter is again 1.4% higher in females than in males. Results of cross-gender comparisons of FWT at the sites presented in SSA schoolchildren are reliable. RBF in SSA school children is 2.71% higher in females compared to males (Fig. 2,3): In HSA females, FWT of MPGS is 0.84% higher than in males, FWT of MOEA is again 0.59% higher in females than in males, FWT of MS is again 0.43% higher in females. In HSA schoolchildren, the results of the inter-gender comparison of FWT of the presented sites are reliable. In HSA schoolchildren, RBF was 2.2% higher in females than in males (Figure 2,3).

Figure 2.

In male (A) and female (B) schoolchildren of different age groups, ES, SSA, and HSA, from 4 different sites, including the pelvic girdle superior muscle (MPGS), external oblique abdominis (MOEA), subscapularis muscle (MS), triceps brachii (MTB) fat layer thickness expressed as a percentage. There is reliability between sexes of different age groups (p < 0.001-0.007; **p < 0.001-0.006).**

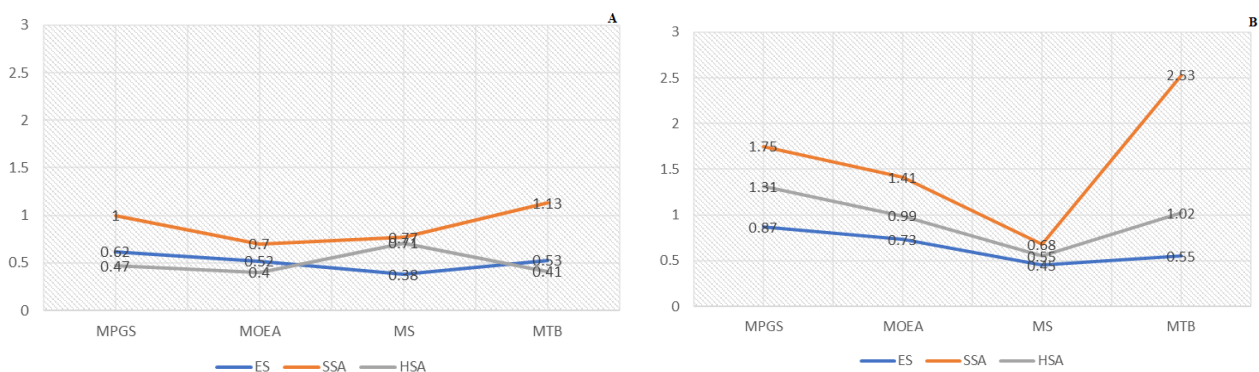
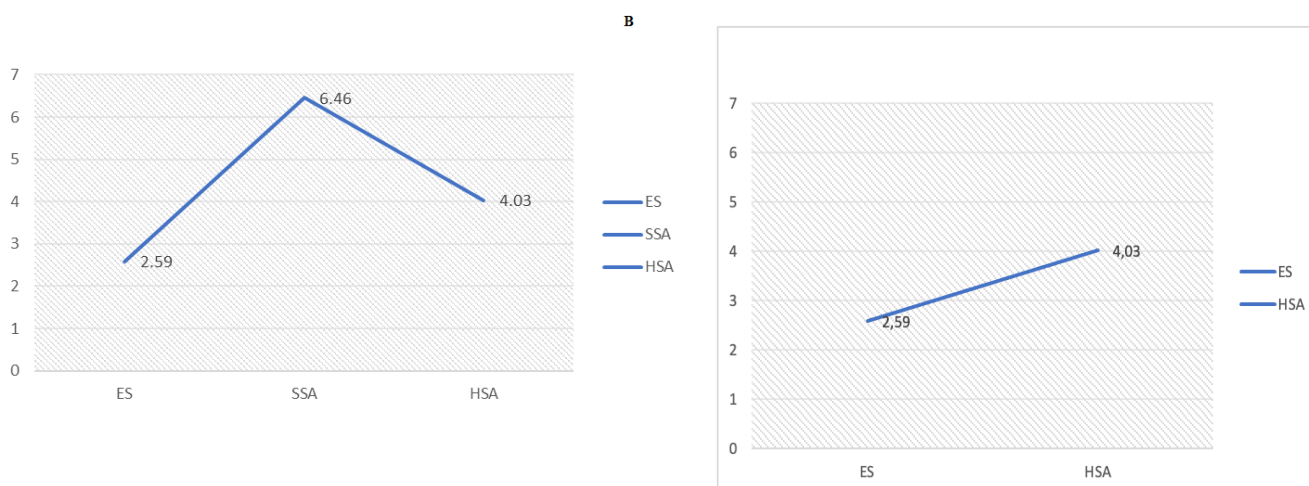


Figure 3.

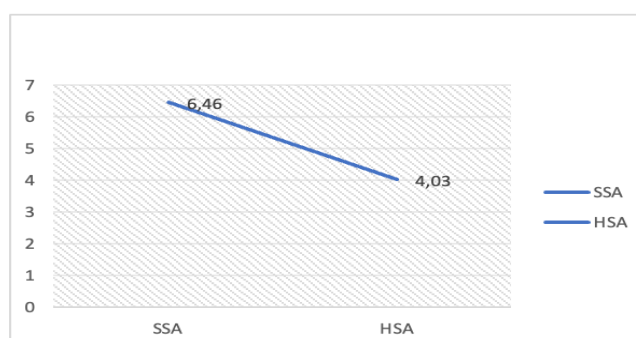
Relative fat content expressed in percentages in male (A) and female (B) schoolchildren of different age groups: ES, SSA, and HAS.



Comparing ES with SSA, it turns out that especially in females, the thickness of the fat layer is 6.46%. Comparing the ES with the HSA, it was found that it was 4.03% higher at the HSA, comparing the SSA with the HSA, it was found that the HAS rate was recorded at the SSA, 6.46%. In terms of males, the comparison with the same approach also confirms that the HSA rate is present at the SSA (Figure 4). Regarding the reliability of intergroup comparisons, the results obtained are actually reliable.

Figure 4.

Intergroup comparison of relative fat content in male (A) and female (B) schoolchildren of different age groups: ES, SSA, and HSA.



Intergroup comparisons of FWT and RBF were also performed for all observed sites, to understand the trend of obesity in general, in which age group, and in which gender in particular. Comparisons revealed that MPGS FWT in SSA females was higher (1.75%) than in the other two age groups, and somewhat higher in HSA females (1.31%). The FWT of MOEA in SSA females is again high (1.41%) compared to other age groups. The FWT of MS and MTB is relatively high in SSA and HSA schoolchildren (Figure 2). The intergroup comparison of RBF also states that although the latter is high in females of all age groups, it is higher in SSA and HSA schoolchildren.

Undoubtedly, it should be assumed that in the group of SSA schoolchildren, due to puberty, the endomorphic type of somatotype prevails in the female sex, that is, high indicators of the pelvic girdle and chest circumference, pronounced abdomen, fat deposits in the pelvic area. In males, the mesomorphic somatotype, i.e., medium height, rectangular body shape, broad chest, and narrow pelvis. Among the latter, fat is mainly concentrated in the upper half of the body, in the neck, shoulders, and lower abdomen. It should be assumed that due to puberty, the male sex hormone testosterone, as an anabolic hormone, significantly contributes to the synthesis of muscle proteins in HSA schoolchildren, as a result of which, during puberty, the muscle mass is on average 1.5 times higher than the female muscle mass, and fat the process of increasing the layer is depressed (Saphonenko, 2018; Maltsev, 2023). In addition, the influence of testosterone stimulates the accumulation and preservation of calcium in the bones, as a result of which, although the bones expand and strengthen, the accumulation of fats is also suppressed (Khudaverdyan, 2020). As a result, a stronger male-specific support is formed: a funnel-shaped, narrow pelvic cavity, which was also confirmed by our research.

CONCLUSIONS

As a result of research, it was found that in about 16 schools of Vayots Dzor region of RA, especially in Vaik schools, the RBF of SSA schoolchildren is quite high. In the latter, the endomorphic somatotype prevails and there is a risk of obesity. There is a clear correlation between fat metabolism and somatotype in SSA and HSA schoolchildren. Physical activity should be accepted as a comprehensive weight loss therapy and part of a strategic weight control program, as it contributes to the loss of excess weight and its sustainable maintenance, under conditions of regular evaluation of the body mass index.

Thus, with age, visceral adipose tissue, as well as intermuscular fat, tends to increase, and the peripheral subcutaneous adipose tissue layer is significantly reduced. Gender differences observed during the research generally prove once again that the distribution of subcutaneous fat is relatively more balanced in male schoolchildren of SSA and HSA. In females, it is expressed by the accumulation of

subcutaneous tissue in the thighs, abdomen, buttocks and front of the chest, on the surface of the upper limbs, which is also documented by public literature data. (Akazawan., et all., 2021). Fat distribution in females also influences reproductive health, highlighting the complex interactions between adipose tissue and hormonal balance (Fat Tissue and the Female Reproductive System, n.d.). In addition, it was found that the index of 4 different points of the body is correlated with anthropometric individual indicators and somatotype of schoolchildren (Anisimova, 2023):

It should be assumed that perhaps the sedentary lifestyle or hypodynamia of schoolchildren, as well as an unhealthy diet, to some extent lead to the accumulation of excess fat mass.

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KEY ASPECTS OF SPEECH THERAPY FOR VOICE RESTORATION IN CASES OF VOCAL CORD DYSFUNCTION AND FAILURE

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ABSTRACT

This article investigates the underlying causes of vocal fold and hypo dissolution and their pathological impact on the acoustic properties of the voice and respiratory function. It delineates the characteristic symptoms experienced by individuals with vocal fold dysfunction, highlighting the adverse effects on voice quality and communication challenges. It addresses complications associated with vocal fold dysfunction and outlines a structured speech therapy approach to mitigate voice disorders. The therapeutic approach emphasizes integrating interdisciplinary techniques to achieve optimal corrective outcomes.

Given its relevance, this issue holds significant importance in both healthcare and pedagogical contexts, particularly in treating and rehabilitating individuals with vocal fold dysfunction.

Keywords: *vocal fold dysfunction, hypodissolution, recurrent laryngeal nerve, cleft palate, voice therapy, speech rehabilitation*

INTRODUCTION

Vocal cord dysfunction, including conditions such as dissolution and hypodissolution, poses significant challenges in both medical and therapeutic fields due to its direct impact on vocal and respiratory function. These disorders affect the normal vibration and closure of the vocal cords, leading to impaired phonation, reduced vocal quality, and breathing difficulties. Individuals suffering from vocal fold dysfunction often experience symptoms such as hoarseness, a breathy voice, and challenges in producing speech sounds, which severely limit their ability to communicate effectively.

The causes of vocal cord dysfunction are multifaceted, encompassing neurological, structural, and functional origins. Conditions such as recurrent laryngeal nerve damage, vocal cord paralysis, and congenital anomalies like cleft palate are commonly associated with these disorders. Speech difficulties impair verbal communication and have psychosocial implications, affecting the quality of life.

Effective management of vocal cord dysfunction requires a multidisciplinary approach, integrating medical, surgical, and speech therapy interventions. This article explores the causes of vocal fold dissolution and hypodissolution and their effects on both acoustic and respiratory functions. Furthermore, it examines speech therapy strategies aimed at restoring voice functionality and improving communication abilities. By addressing the underlying causes and utilizing targeted rehabilitative approaches, speech therapy plays a crucial role in helping individuals regain their vocal capacity and communicative competence. Various studies have focused on specific therapeutic techniques for voice rehabilitation in children and adults, underscoring the role of comprehensive speech therapy (Almazova, 2005; Orlova, 2008).

This study aims to provide a comprehensive overview of the pathological impact of vocal cord dysfunction and offers insights into the importance of interdisciplinary corrective work, particularly within healthcare and educational systems, in addressing speech and voice challenges posed by these disorders.

REVIEW OF THE LITERATURE

The earliest references to the vocal apparatus, its function in sound production, and related disorders date back to ancient times. Greek philosophers such as Hippocrates and Galen discussed voice-related issues in their works. In the medieval period, the Persian polymath Avicenna (980–1037 AD) elaborated on vocal pathologies and therapeutic interventions in his treatise, *The Canon of Medicine*. Avicenna explored the critical role of the vocal cords in phonation, linking vocal cord dysfunctions to the central nervous system and emphasizing the brain's influence on vocal mechanisms (Haque, 2004; Noor, 1996).

Modern research on vocal disorders has advanced significantly, with contributions from scholars such as Almazova, Orlova, Lavrova, Vasilenko, Ermolaeva, Maksimova, Uklonskaya, Minaeva, and Taptapova. Their work focuses on the prevention, diagnosis, and rehabilitation of voice disorders, particularly those caused by disruptions in vocal cord function (Lavrova et al., 2011). Vocal fold dissolution and hypodissolution are often linked to trauma, infections, viral agents, or recurrent laryngeal nerve damage, which impair the mobility of the vocal cords, affecting both phonation and respiration (Uklonskaya et al., 2012; Lavrova, 2014).

Recent studies indicate an increasing prevalence of vocal cord dysfunction, likely due to factors such as nerve damage from head and neck surgeries, viral infections (including COVID-19), environmental stressors, and lifestyle factors like smoking and alcohol consumption (Minaeva et al., 2020). Excessive vocal strain, neoplasms, and respiratory conditions have also been identified as contributing risk factors (Lavrova & Ermolaeva, 2013).

Lavrova and colleagues have highlighted different positional abnormalities in unilateral vocal fold dysfunction, with vocal cords assuming medial, paramedial, lateral, or intermediate positions. Each presents distinct challenges for voice production and respiratory function. For instance, lateral positioning affects vocal strength, pitch, and timbre, while medial positioning is associated with more severe breathing difficulties (Lavrova, 2016; Shaboyan, 2015).

In cases of vocal cord dissolution and hypodissolution, patients often experience hoarseness, vocal fatigue, reflexive coughing, and difficulty breathing. Severe cases may result in complete loss of voice (aphonia), significantly impairing communication and reducing quality of life (Minaeva et al., 2017). These symptoms can hinder verbal communication, leading to psychological and social challenges, as individuals may withdraw from social interactions or face difficulties in fulfilling professional responsibilities. Classical phoniatric methods have long been applied to manage symptoms and improve vocal outcomes in such cases (Maksimov, 1987).

Due to the profound impact of vocal cord dysfunction, its diagnosis and treatment require a multidisciplinary approach. Otolaryngologists and neurologists address the physical causes of the disorder, while speech-language pathologists focus on rehabilitating voice function. Psychologists provide necessary support to manage the psychological effects of vocal disorders (Taptapova & Kopteeva, 2018). Early detection, preventive measures, and collaboration among these professionals are essential for successful patient outcomes.

METHODOLOGY

This research utilized the case study method, an in-depth qualitative approach, to explore the therapeutic interventions and outcomes for individuals diagnosed with vocal fold dysfunction. The goal was to gain a comprehensive understanding of the rehabilitation process and the effectiveness of tailored speech therapy techniques in restoring voice function.

The case study method allowed for detailed examination of the following:

1. **Patient Background and Diagnosis:** Detailed medical histories, including causes of vocal fold dysfunction (e.g., nerve damage, viral infections, surgical trauma), and the symptoms affecting phonation and respiration.

2. **Therapeutic Interventions:** Detailed descriptions of speech therapy techniques used for each patient, including voice exercises, breathing techniques, and strategies to improve vocal cord mobility.
3. **Progress and Outcomes:** Monitoring patients' progress through acoustic and qualitative assessments, combined with patients' feedback on their improvements in communication and quality of life.
4. **Multidisciplinary Collaboration:** Insights into the collaborative efforts between healthcare professionals, emphasizing the holistic management of vocal fold dysfunction.

This case study approach offered a nuanced view of patient experiences, demonstrating the variability of vocal fold dysfunction across individuals and highlighting the importance of personalized therapeutic strategies.

PROCEDURE

Based on a comprehensive review of literature, the Gutzman method of voice rehabilitation, which focuses on systematic training of the respiratory and phonatory systems, was incorporated into the multi-stage therapy approach (Gutzman, 2017). This structured approach aimed to address both physiological and psychological dimensions of vocal disorders.

The rehabilitation procedure included four key stages:

1. **Preparatory Stage:** An initial conversation to assess the patient's understanding of their condition and explain the exercises. Transparency and patient education were emphasized to build trust and encourage adherence to therapy.
2. **Breathing Regulation Stage:** Controlled respiratory exercises targeted at improving neck, diaphragm, and upper pelvic muscle coordination. Harmonica exercises were introduced to enhance breath control and airflow management during speech.
3. **Vocalization Stage:** Phonatory exercises aimed at refining sound production and articulation, with a focus on vowel and consonant combinations to improve vocal clarity and speech fluency.
4. **Reinforcement and Transition to Functional Speech:** Progressive exercises transitioned the patient to functional speech, incorporating tasks such as reading aloud and practicing connected speech.

RESULTS

Case Information:

- **Patient:** D.M.A., 14 years old
- **Medical Diagnosis:** Atresia of the pulmonary artery, interventricular septal defect, aortopulmonary collateral vessels, right aortic arch.

• **Medical History:** Post-surgical tracheostomy removal led to significant dysphonia, characterized by low, hoarse vocal quality, breathing difficulties, and vocal fatigue.

Initial speech assessments indicated dysphonia likely caused by paralysis of the dilator muscle of the vocal cords, with videofibrolaryngoscopy recommended for confirmation. A multidisciplinary approach involving consultations with a neurologist and psychologist was advised.

The rehabilitation plan included breathing exercises (e.g., blowing on cotton, harmonica exercises) and vocal exercises (e.g., syllabic combinations using "M" sounds). Progress was marked by improvements in vocal quality, breath control, and reduced vocal fatigue.

DISCUSSION

This case study highlights the effectiveness of a structured, multi-phase speech therapy approach in restoring vocal function in a patient with severe dysphonia post-surgery. Breathing regulation exercises and vocalization techniques were crucial in improving voice quality, while the holistic approach addressed both physical and psychological aspects of recovery. Advances in phonopedic work offer insights into newer technologies for managing voice disorders (Shashkina, Zhuravleva, Agaeva, & Zolotvereva, 2024).

The individualized therapy plans emphasized gradual progress, enabling the patient to regain vocal strength and communication abilities. The supportive therapeutic environment, built on trust and patient education, was essential for successful rehabilitation.

CONCLUSION

This case study highlights the crucial role of speech therapists in the multidisciplinary rehabilitation of young patients with vocal cord dysfunction. Through a carefully structured and individualized therapy plan, the speech therapist successfully restored the patient's vocal abilities, addressing both the physical challenges of voice production and the emotional and psychological difficulties associated with voice loss.

The multi-phase approach—starting with trust-building and education, followed by breathing regulation, vocal exercises, and speech automation—demonstrated the complexity of vocal rehabilitation. Each stage was tailored to the patient's specific needs, allowing for gradual improvement in vocal strength, breath control, and communication skills. The therapist's guidance ensured that exercises were properly executed and adapted to the patient's capacity, promoting steady progress.

Beyond technical rehabilitation, the speech therapist provided essential emotional support, addressing the psychological impact of vocal dysfunction. By fostering a supportive environment and

maintaining open communication with the patient and their family, the therapist alleviated anxiety and frustration, contributing to a more successful outcome.

In conclusion, the speech therapist's expertise, holistic approach, and adaptability were pivotal in restoring the patient's voice and improving their quality of life. This case underscores the indispensable role of speech therapy in the rehabilitation of vocal disorders, particularly in complex cases involving medical, psychological, and emotional factors. Speech therapy remains a cornerstone of vocal rehabilitation, essential for achieving long-term success and reintegration into daily life. Comprehensive resources and updated methodologies remain essential for supporting speech therapists in their rehabilitative efforts (Sapienza & Hoffman, 2022; Roth & Worthington, 2021)

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THE PROBLEM OF DEVELOPING THE RESEARCH COMPETENCE OF SPECIAL EDUCATORS

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ABSTRACT

The article deals with the problem of developing the research competence of special educators. The article analyzes foreign and domestic experiences in the development of research competence. The essence of the concept of research competence is revealed, and its features and capabilities are defined and disclosed. The characteristics of the concepts of competence, competence approach, and research competence are given. Research competence is the formation of skills necessary for carrying out research activities, and the presence of motivation for scientific activity. It is characterized by achieving the result necessary to achieve the set goals, planning, designing, conducting research, discussing and demonstrating their results.

Research objectives: to identify the theoretical and methodological foundations of the problem of developing the research competence of special teachers; to systematize the methodological foundations of the problem of developing the research competence of special teachers.

The purpose of the study: theoretical methodological substantiation of the problem of developing the research competence of special teachers, the development of a methodology and experimental verification of its effectiveness.

In order to identify the effectiveness of the problem of developing the research competence of special teachers, an ascertaining experiment and a questionnaire survey of students were conducted. Based on the results of the survey, the levels and content of the problem of developing the research competence of special teachers were determined. The results have been verified and displayed on the chart.

Keywords: *competency, competence, research competency, future special educators, developing research competence, methods, education.*

INTRODUCTION

Currently, the issue of competencies in the preparation of students as future competitive specialists is very relevant. In this aspect, competence plays an important role in the training of future specialists.

In the Russian Federation, Khutorskoy defines competence as knowledge in an activity that can be implemented at a standardized, necessary and appropriate level of competence (Khutorskoy, 2008, pp. 456-458).

According to Vladimirova, competence is a set of requirements in education, and competence is experienced in the implementation of competence-based action (Vladimirova, 2016). The work of Arsentieva substantiates the need for the formation of research competencies of students in higher educational institutions (Arsentieva, 2012).

In the Republic of Kazakhstan, Taubayeva researched methodological and theoretical issues of organizing and conducting pedagogical research as a scientific means of improving educational practice (Taubayeva, 2000). Edilbai Ospan put the foundations of academic writing in the first place, as the most important element in increasing the level of accessibility of higher education in the country (Ospanov, 2020).

As a result of analyzing the opinions of the above-mentioned scientists, it became obvious that the concepts of competence and competency cannot be considered without each other. At the same time, based on the opinions of scientists, it is clear that competence has a different definition. In addition, the focus of scientific research is on several types of competencies, in particular, professional, informational, cultural, communication, social, research, etc. Beshpalova (2021) emphasizes the early development of research competencies in younger schoolchildren, which lays a solid foundation for higher education pursuits.

EXPLAINING THE STATE OF THE ART OF THE PROBLEM

Research competence is the formation of skills necessary for carrying out research activities, and the presence of motivation for scientific activity; it is characterized by achieving the result necessary for setting goals, planning, designing, conducting research, discussing and demonstrating their results (Syzykbaeva, 2022).

The purpose of each discipline studied at the university is to develop students' research competencies. Understanding the values of research work and the availability of research competence

will help future specialists form a willingness to implement the knowledge and skills acquired in universities in their activities, to master scientific methodology, and research experience. The main purpose of organizing and developing independent work of students on a scientific basis is to improve the quality of university education, the level of training of specialists with higher professional education, and identify young people who are passionate about science (Zhekseminova, 2021).

In the Republic of Kazakhstan, Zhekseminova investigated the problem of the formation of research competence of future social educators (Zhekseminova, 2021), in the study of Espolova, research competence is considered based on the updated content of natural science education for primary school students (Espolova, 2021). Ramazanova formed research competence in teaching biotechnology students (Ramazanova, 2022), Syzdykbaeva studied the theoretical competence of future primary school teachers (Syzdykbaeva, 2022).

Movkebayeva in a number of her works noted the readiness of people with disabilities to choose a profession (Movkebayeva, 2018). Movkebayeva's (2018) work addresses the preparation of teachers for inclusive education, highlighting the need for specialized training to accommodate diverse student needs. The basics of sign language teaching for students majoring in "Special Pedagogy" at pedagogical universities were developed by Autaeva (Autaeva, 2011). Abayeva contributed to the training of typhlopedagogics specialists (Abayeva, 2014). Abaeva's work on special pedagogy and psychology highlights the foundational principles required for successful special education (Abaeva, 2014).

At the same time, the analysis of the above-mentioned works showed that the problem of developing the research competence of special teachers has not been practically studied. The analysis of the problem confirmed its relevance, and also revealed contradictions between the needs of society and the theoretical and practical justification for the development of research competence in special pedagogical science:

- insufficient interest of future special educators in carrying out scientific work to determine and resolve the readiness of research competencies and abilities;
- the existence of contradictions between the theoretical justification of the research competence of special teachers by the requirements of modern society and the insufficiently developed content and methodology of its implementation in practice.

The purpose of our research was to solve the problem of developing the research competence of future special teachers, to develop a methodology, its theoretical methodological justification and experimental verification of its effectiveness.

Research objectives:

- Definition of the theoretical and methodological foundations of the problem of developing the research competence of special teachers;

- systematization of the methodological foundations of the problem of developing the research competence of special teachers;
- conducting a pedagogical experiment to test a special methodology for developing the research competence of special teachers and introducing its effective results into the learning process.

DATA COLLECTION AND ANALYSES

To achieve the purpose of the study, the following methods were used: analysis of methodological literature and research, recognition, generalization, and comparison of key issues related to the topic; empirical and pedagogical control, conducting questionnaires with students, quantitative analysis of its results. The study used a questionnaire method to collect basic information. The questions of the questionnaire designed for students were open and closed. During the survey, several questions were considered within the framework of the topic under study:

- What is a research competence?
- What place, in your opinion, does the development of research competence occupy in the training of future special teachers?
- Is research competence related to research activities?

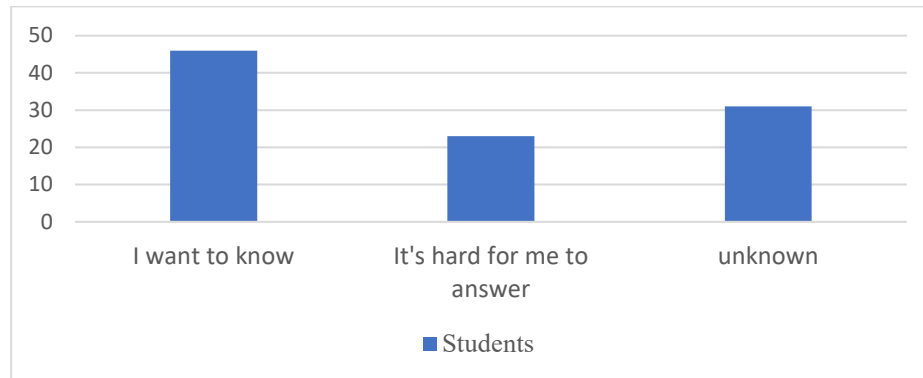
The experiment was attended by 43 students of the Abai Kazakh National University. Students of 3-4 courses participated in the experiment. Students were given survey questions through the Google disk platform.

RESULTS AND DISCUSSION

The ascertaining experiment was attended by students of 3-4 courses of the educational program "6B01901-Special pedagogy". In order to determine their research competence, "What is research competence?" a question was asked. As a result, 46% of the answers to the question were completely correct, and 54% wrote only partial answers (Figure 1).

Figure 1.

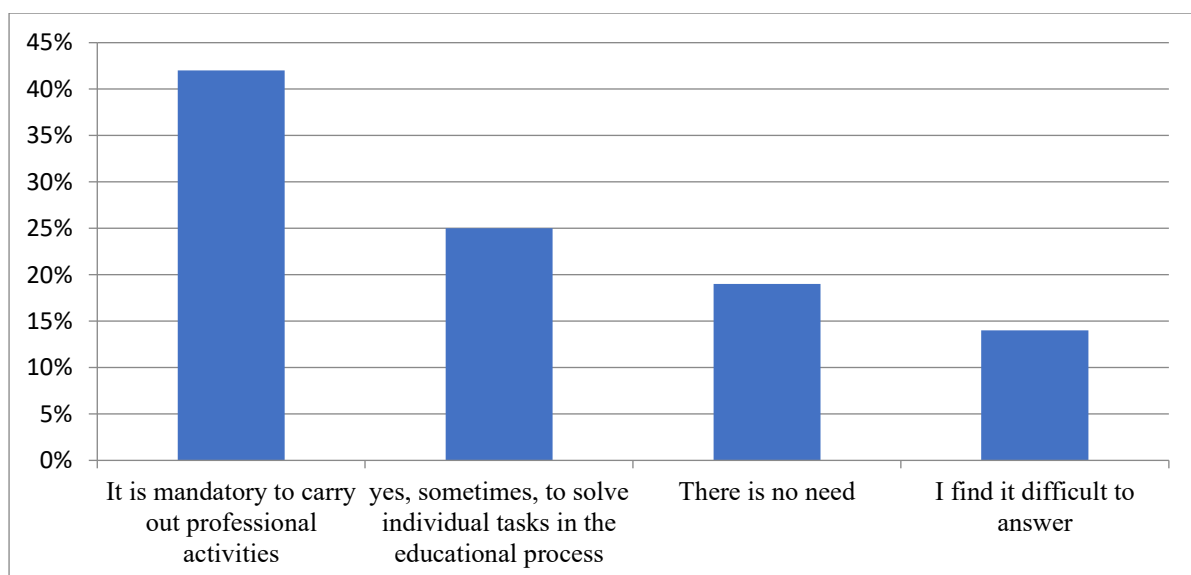
Analysis of the results of the answers to the "What is research competence?"



To determine the knowledge of students about research competence, "What place, in your opinion, does the development of research competence occupy in the training of future special teachers?" a question was asked. Related to this, 42% of respondents necessarily need, to carry out professional activities, 25% yes, sometimes, to solve individual tasks in the educational process, 19% no, they are not needed, the rest find it difficult to answer (Figure 2).

Figure 2.

Analysis of the results of the answers to the question "What place, in your opinion, does the development of research competence occupy in the training of future special teachers?"

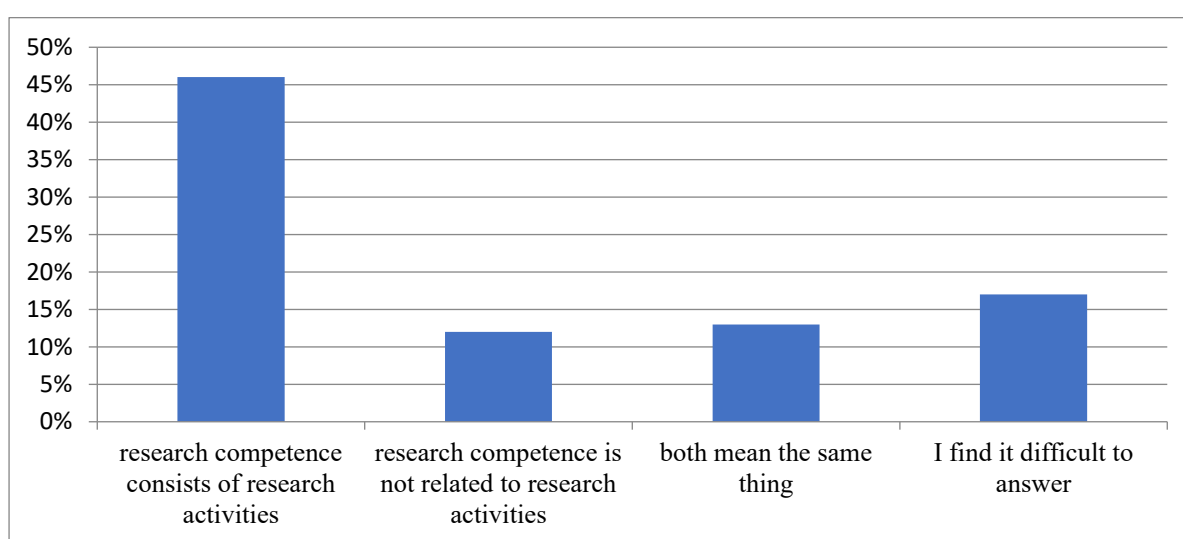


In order to identify the connection of students' research competence with research activities, the question "Is research competence related to research activities?" was asked. As a result, 46% of research

competencies consist of research activities, 12% of research competencies are not related to research activities, 13% both have the same meaning, 17% find it difficult to answer the answer shown (Figure 3).

Figure 3.

Analysis of the results of the answers to the question "Is research competence related to research activities?"



As a result of the results obtained, it became clear that most of the students were not psychologically ready to engage in research work. They cannot adapt to new types of lessons, or perform certain tasks; as a result, they experience difficulties due to a lack of understanding of research competence.

In modern conditions, it remains unclear how well future specialists perform their research and independent work assignments. The results of the conducted surveys require intensive work in the research competence of students. It is obvious that in order to develop the research competencies of special teachers, it is necessary to carry out certain purposeful work that will contribute to improving the professional level of future teachers. This circumstance is extremely important and relevant for the prosperity and further development of the Republic of Kazakhstan.

In our opinion, the development of research competence is the organization of a purposeful learning and upbringing process by performing additional research aimed at meeting the individual educational needs of students and ensuring the self-development of a creative personality. The development of the research competence of special educators is a necessary and valuable component in the system of continuing education of a higher educational institution and contributes to achieving the fullest satisfaction of the needs of students in the learning process.

CONCLUSION

The article analyzes the opinions of foreign and domestic scientists on the development of students' research competencies. The definition of research competence is given, and its essence, features and capabilities are revealed. To determine the effectiveness of the problem of developing the research competence of special teachers, a survey of students was conducted. The results of the survey showed the relevance of developing the research competence of future special teachers. The results of the survey showed the relevance of the development of research competencies for future special teachers. During the survey, questions related to the development of research competence of future special teachers were given. "How do you understand research competence?" we see that the vast majority of students are interested in the question "What is it?" What, in your opinion, is the development of research competence in the training of future special teachers? We note that the students who took part in the meeting answered positively. "Is research competence related to research activity? Students participating in the survey showed that they are related.

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