



Research article

Formation of communicative competence of massage therapists with visual impairments: A research study

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ABSTRACT

Background: Communicative competence for massage therapists with visual impairments is an important aspect in ensuring their successful integration into the profession and society. However, visually impaired massage therapists face numerous barriers to effective communication during their education, hiring process, and professional employment.

Aim: To study why communicative competence is important for students with visual impairments; to research features of communication of persons with visual impairments; to identify barriers and effective strategies for formation of communicative competence in the educational process.

Design: A qualitative descriptive study with focus groups and semi-structured interviews.

Settings: Higher education institution in Lviv (Ukraine) offering a nursing programme for students with visual impairments.

Participants: Three groups of respondents, namely visually impaired alumni of Lviv Medical Academy, Ukraine (n = 6), alumni's employers and co-workers (n = 4), and experts in the education of visually impaired persons (n = 11), participated in the research.

Methods: Two focus groups and in-depth semi-structured interviews were used to collect data. Interviews were transcribed verbatim and thematic coding was used to analyze transcripts.

Results: Five themes arose: significance of communication for nurse massage therapists with visual impairments; features of communication of persons with visual impairments; barriers to communication of persons with visual impairments; tools and approaches to improve communicative competence of massage therapists with visual impairments; ineffective methods in teaching communication to visually impaired students.

Conclusions: Communication barriers faced by visually impaired nursing students include isolation in specialized institutions, parental hypervigilance, and the challenge of establishing eye contact, which impedes reading nonverbal cues. To enhance communicative competence, it is essential to implement interactive teaching methods, involve students in various activities, ensure educational accessibility, and adopt an individualized and empathetic approach. Both inclusive and special education have advantages and disadvantages. It is recommended to advocate for a

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“reasonable accommodation” model to ensure high-quality education for visually impaired massage therapists.

1. Introduction

The Convention on the Rights of Persons with Disabilities defines persons with disabilities as “those who have long-term physical, mental, intellectual, or sensory impairments which, in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others” [1]. According to the World Health Organization (WHO), 1.3 billion people, or 16 % of the global population, have disabilities, and this number is rapidly increasing [2]. The State Statistics Service of Ukraine reports that, as of January 2022, there were 2,725,826 persons with disabilities, accounting for 6.6 % of the country’s total population [3]. Although official statistics are lacking, it is estimated that approximately 300,000 people in Ukraine have varying degrees of visual impairment, with around 40,000 believed to be totally blind [4].

Despite the protective legal framework, violations of the rights of persons with disabilities still occur. They can take many forms, such as institutionalization, isolation, stigmatization, and discrimination. It can hinder the full inclusion of persons with disabilities in society. Although there is a 4 % quota for employing persons with disabilities as mandated by the labour legislation of Ukraine [5], a considerable number of employers opt to pay fines instead of hiring persons with disabilities [6]. Employers are often hesitant to hire individuals with disabilities because they do not view them as viable candidates for employment. This reluctance is driven mainly by societal stereotypes that suggest persons with disabilities are unable to perform their job duties effectively [7].

People with disabilities often face difficulties accessing adequate quality services, including education at all levels [8–11]. Until 2017, persons with visual impairments in Ukraine were not enrolled in general secondary education institutions, as programmes were not developed to accommodate their special education needs. They studied mainly at the six specialized educational institutions for blind and visually impaired (VI) children. In 2017, the Laws “On Education” and “On the Approval of the Procedure for the Organization of Inclusive Education in Institutions of General Secondary Education” were adopted in Ukraine. According to the former, one of the principles of state policy in education is “the development of inclusive educational environment, including in institutions of education that are the most accessible and closest to the place of residence of persons with special educational needs” [12]. Inclusive and special education for persons with visual impairments have been developing simultaneously since, causing a debate among experts in education in this field regarding which form of education is better suited for this specific group.

Traditional educational models can sometimes be ineffective or impractical for students with disabilities, failing to accommodate their needs and preventing them from fulfilling the essential functions of an academic programme. Therefore, it is crucial to adapt educational models to meet the needs of these students. Providing reasonable educational accommodations that enable students with disabilities to participate in academic programmes and work on an equal basis with their sighted peers is a significant and relevant concern in academic discourse [13–15] and legal frameworks [1]. Article 2 of the UN Convention on the Rights of Persons with Disabilities defines reasonable accommodation as “necessary and appropriate modification and adjustments not imposing a disproportionate or undue burden, where needed in a particular case, to ensure to persons with disabilities the enjoyment or exercise on an equal basis with others of all human rights and fundamental freedoms” [1]. Education models based on the principle of “reasonable accommodation” should neither compromise the core elements of a course or curriculum nor undermine the academic standards or integrity of the course. Instead, these models should provide alternative means of meeting course requirements by removing or reducing barriers for persons with disabilities, thereby ensuring equal conditions for all participants throughout the educational process without conferring unfair advantages [15].

1.1. Background

Higher medical education programmes in Ukraine are not developed to meet the educational needs of visually impaired (VI) persons, except for special education programmes that allow the acquisition of a nurse massage therapist specialty at the level of vocational education [16]. Hui-Ying Chu and Hui-Shan Chan [17] report that becoming a massage therapist is one of the vocational training options available for the visually impaired, offering a pathway to professional development and employment. The training is designed to help VI persons acquire the necessary knowledge and techniques in massage, enabling them to obtain licenses and become certified professionals. The opportunity to work as a massage therapist has provided these individuals with a sense of stability and happiness, as it allows them to support their families [18]. To demonstrate the significance of this specialty, it is worth referring to the analysis carried out by the administrators of Lviv Specialized Boarding School for Blind and Visually Impaired Children on the career paths chosen by school graduates from 1991 to 2022. It is found that 33.7 % of them chose to pursue medical specialties, of whom 97 % decided to become a certified massage therapist (Lviv Specialized Boarding School for Blind and Visually Impaired Children 1991–2022, unpublished data).

The recently adopted Law of Ukraine “On Rehabilitation in the Healthcare System” [19], which aligns with current practices and achievements in the field, provides for the work of massage therapists, including those who are visually impaired, as part of multi-disciplinary teams to provide comprehensive care and rehabilitation for individuals with different needs. However, the training curriculum for nurse massage therapists in Ukraine is primarily based on the Soviet programme of the 70s and 80s. It focuses mainly on professional competencies and does not adequately address the interpersonal and communication skills necessary for effective interaction with patients and colleagues. As a result, blind and VI massage therapists are not prepared to work as equal members of

multidisciplinary rehabilitation teams.

Communication in nursing is a fundamental clinical skill and one of the most essential tools for providing quality patient care and improving patient satisfaction [20,21]. Communication in healthcare settings involves the exchange of information, thoughts, and feelings between nurses and patients through language and other means to establish trusting relationships, foster empathy, and increase team effectiveness.

Disabilities, including sensory ones, contribute to insufficient communication skills and socialization development. Numerous studies indicate that blindness and visual impairments hurt the social interactions and social life of VI persons [8,22–24]. Persons with visual impairments face challenges in interpreting non-verbal cues, such as body language, which impedes their ability to engage in effective interpersonal communication [21,25–27].

Therefore, it is necessary to pay special attention to communicative competence in training nurse massage therapists with visual impairments by developing their communication skills and helping them overcome the barriers that may arise in their future professional activities. Well-developed communicative competence is the key to good self-presentation during job interviews, establishing meaningful relations with clients, building empathy and trust, and developing interaction and comprehension among individuals in a team [28–30]. Aneraye et al. [31] report that communication skills are crucial for social interaction and independence. VI individuals actively seek opportunities to engage with others in educational settings, workplaces, or social gatherings. Effective communication fosters their independence and integration into society.

It is necessary to rethink nursing education for students with disabilities in Ukraine. Success strategies for students enrolled in the nursing programmes should be developed, and practical teaching tools for teachers of medical higher education institutions should be introduced. VI students have the right to access the same curriculum as their sighted peers, to achieve prescribed learning outcomes, and to be valued, participating members of their class [32]. Therefore, it is essential for teachers to create or improve educational programmes and adapt educational approaches, methods, and tools to form and master the communicative competence of VI massage therapists.

1.2. Research question

The study of the communicative competence of visually impaired massage therapy students in Ukraine is based on a constructivist paradigm. Disability in this research is viewed as a socially

constructed phenomenon. Our research aims to change society's attitudes towards people with visual impairments and reduce prejudice and stereotypes among employers and patients. This will be facilitated by improving communication competencies, which can be developed and enhanced through education.

Research question of the study was: *How can the communicative competence of nurse massage therapists with visual impairments be formed and improved during the educational process, considering barriers and success factors?*

The current study aims: 1) to study why communicative competence is essential for VI students; 2) to research features of communication of VI persons; 3) to identify barriers and effective strategies for the formation of communicative competence in the educational process.

2. Materials and methods

2.1. Design

A qualitative study was conducted using focus group interviews with 1) massage therapist graduates of Lviv Medical Academy and 2) their employers and co-workers and semi-structured interviews with 3) experts in the education of VI persons. The qualitative descriptive method was chosen because it is the most suitable for seeking information and descriptions of experiences from the participants' insights and points of view regarding communicative competence. Additionally, this research method was also applied because this is the first study of its kind in Ukraine; therefore, there is no data available to use in this research.

2.2. Data collection

A body of literature was investigated before developing the research tools for this study [33,34]. Three separate guides were designed for.

1. A focus group with VI alumni of Lviv Medical Academy (LMA),
2. A focus group with employers and co-workers of LMA alumni, and
3. Semi-structured in-depth interviews with experts in the education of VI students.

All the guides were composed of several sections of questions, each containing a section dedicated to biographical data. The guides for the alumni and their employers and co-workers included.

- sections addressing the significance of communication,
- the features of alumni communication during their studies,
- the hiring process,

- job performance, and
- their ability to communicate effectively within a team.

The guide for experts included sections that considered their overall background and experience in working and communicating with VI students, as well as recommendations on how to cultivate and enhance communicative competence in VI individuals.

Before the study began, pilot interviews were conducted with one representative of each group of respondents. These interviews were crucial for evaluating the questions' suitability and clarity for the respondents. Consequently, revisions were made to the alumni guide. Several questions contained specific pedagogical terms (e.g., "competence," "feedback," "institutional support") that were unfamiliar to the alumni, leading to a reformulation of those questions.

The respondents for the alumni focus group were selected using personal contacts (research team members taught these alumni as LMA students). The criteria for choosing the subjects were visual impairment, graduation from LMA, and employment as a massage therapist.

Employers and co-workers were selected using snowball sampling among the employers of the alumni who participated in the study. The criteria for selecting the subjects were as follows: employment in an institution where LMA alumni with visual impairments work and direct communication with such employees. Employers and co-workers who do not directly work with LMA alumni were excluded.

Respondents for in-depth semi-structured interviews were selected using personal contacts and recommendations of other experts (the "snowball" method). In Ukraine, VI persons are trained at three educational levels: secondary education, vocational education, and higher education; therefore, teachers of all these educational levels were invited to participate in the interviews. The main criteria for selecting the participants were as follows: personal achievements (published research articles, organization of seminars for teachers, participation in training, seminars, and conferences) in the field of education of VI persons and experience in teaching such persons. Experts who did not have any knowledge of direct communication with visually impaired students were screened out.

Initially, 12 LMA alumni, 10 employers and co-workers, and 11 experts were invited to participate in the study through phone calls, emails, or personal meetings. Some potential participants declined due to time constraints, safety concerns arising from martial law in Ukraine, reluctance, or institutional restrictions. Remote focus groups and interviews were conducted via Zoom, lasting 80–90 min, with recorded consent obtained from participants. The focus group and interviews were conducted remotely due to the military actions taking place in Ukraine, which rendered face-to-face meetings, especially with experts from the occupied southern regions of Ukraine, either dangerous or unfeasible. Several invited participants declined to participate in the survey due to safety concerns and the challenges of staying abroad during that period.

Three members of the LMA research team facilitated focus group interviews: two asked questions, and one took handwritten notes. Two researchers held interviews with experts in education: one asked the questions, and the other took notes.

2.3. Analysis

All four research team members transcribed the audio recordings of the interviews verbatim. Following this, the team engaged in a collaborative process of analyzing the transcribed texts, using thematic coding to identify and categorize the key topics and concepts that emerged during the interviews. Subsequently, the research team developed a guide codebook with a code tree and citations to support the relevant issues identified.

The analysis also involved data triangulation: comparing and cross-referencing findings with additional literature. This approach facilitated the validation of emerging topics and provided a more comprehensive understanding of the research issue and critical insights.

2.4. Ethical approval statement

This study was reviewed and approved by the Committee on Ethics of Scientific Research of Lviv Medical Academy, with the approval number 574 before the start of data collection. All participants provided written informed consent to participate in the study and for their data to be published.

3. Results

3.1. Participants

The focus group of LMA alumni included five males and one female in the 26–35 age range ($SD = 3.92$). All the participants have visual impairments and various eye diseases; most of them studied at specialized schools for blind students and work in healthcare facilities as massage therapists. In Ukraine, young people usually pursue higher education immediately after completing secondary school, typically between the ages of 17 and 25. However, people with visual impairments in Ukraine have extended educational trajectories and may pursue education and professional development later in life compared to the typical young adult because they have the opportunity to receive more than one higher education at the expense of the Fund for Social Protection of Persons with Disabilities of Ukraine. More detailed information on the demographic characteristics of the LMA alumni focus group participants can be found in [Table 1](#).

The second group consisted of four LMA alumni's employers and co-workers, three females and one male. Their experience of work

with VI persons ranged from 2 to 3 years ($SD = 0.43$). Detailed information about the demographic characteristics of the participants of the focus group can be found in [Table 2](#).

The third group of respondents included 11 experts in the education of visually impaired people. Among the respondents were 10 females and one male. Two of them work at general secondary school, six of them work at higher school, and three of them work at college. Their experience working with VI persons ranged from 2 to 34 years ($SD = 8.89$). Detailed information about the demographic characteristics of the participants in the in-depth interviews can be found in [Table 3](#).

3.2. Themes of interviews

All respondents' answers are structured according to the following five themes.

1. Significance of communication for VI nurse massage therapists.
2. Features of communication of VI persons.
3. Barriers to the communication of VI persons.
4. Tools and approaches to improve communicative competence of VI massage therapists.
5. Ineffective methods in teaching communication to VI students.

A guide codebook with a code tree and citations highlighting the relevant issues was composed.

3.2.1. Significance of communication for VI nurse massage therapists

All respondents noted a prejudicial attitude towards VI persons in Ukrainian society, particularly concerning their professional abilities and qualities. Alumni and experts state that employers tend to favor sighted massage therapists during the hiring process.

The problem is that society does not perceive people with disabilities as non-disabled but as people who are not capable of independent life and can pose a particular threat to others because they are unable to behave appropriately (Ex10, female, sighted).

Therefore, according to the respondents, hospitals are generally reluctant to hire visually impaired or blind individuals, resulting in very few of them being employed.

However, employers who do hire specialists with visual impairments regard them as reliable employees. There is recognition that the employment options of VI massage therapists are limited, and they tend to stay with their current employer and seek alternative job opportunities less frequently than their sighted counterparts.

All groups of respondents report that well-developed communicative competence significantly improves the employability of VI massage therapists. The ability to effectively self-present during the hiring process is essential.

The respondents believe that communication contributes to reducing prejudice towards healthcare workers with visual impairments in society and makes them more noticeable and valuable by building multidisciplinary rehabilitation teams of specialists with and without visual impairments.

Practical communication skills influence the client's satisfaction and engagement during the massage process. The alumni report that the massage sessions typically last between 1 and 1.5 h, and clients often value the opportunity to converse during this time. Thus, strong communication proficiency is highly beneficial for a massage therapist. If a massage therapist possesses practical communication skills, clients benefit from more than just physical therapy; they also receive psychological support. The massage therapist can provide psychological therapy through supportive conversations, active listening, and addressing clients' needs and concerns. This enables therapists to focus on treatment options that efficiently meet clients' requirements, offering maximum relief. According to all respondents, this is a critical factor for clients.

Massage is intellectual work because most of my clients really want to hear and understand [during the massage session] why they have such a health situation and where they have this muscle or that muscle (E2, female, sighted).

Table 1

Demographic characteristics of the focus group participants "Alumni of Lviv Medical Academy" (A), $n = 6$.

Code	Sex	Age	Graduation year	Time of acquisition	Degree of visual impairment	Type of secondary education	Specialty
A1	male	35	2019	congenital	partial vision	specialized boarding school for visually impaired children	massage therapist
A2	male	35	2019	congenital	totally blind	general secondary school	massage therapist
A3	male	26	2019	congenital	totally blind	specialized boarding school for visually impaired children	massage therapist
A4	male	34	2016	acquired in adulthood	partial vision	general secondary school	physical therapist
A5	male	26	2019	acquired in childhood	totally blind	specialized boarding school for visually impaired children	massage therapist
A6	female	30	2019	acquired in childhood	partial vision	specialized boarding school for visually impaired children	massage therapist/ defectologist-speech therapist

Table 2

Demographic characteristics of the focus group participants “Employers and co-workers” (E), n = 4.

Code	Sex	Work experience with visually impaired persons (years)	Job title	Sighted/Visually impaired	Number of visually impaired co-workers in the organization
E1	female	3	owner of the medical care centre	sighted	3
E2	female	1.5	administrator of the rehabilitation centre	sighted	3
E3	male	3	chief physical therapist of the rehabilitation centre	sighted	1
E4	female	3	owner/director of the physical therapy room, family doctor	sighted	1

Table 3

Demographic characteristics of the focus group participants “Experts in education” (Ex), n = 11.

Code	Sex	Experience of work with blind/visually impaired students (years)	Place of work and job title	Sighted/Visually impaired
Ex1	female	17	Higher education institution, a head of the resource centre	acquired blindness
Ex2	female	8	Higher education institution, a specialist of the resource centre	sighted
Ex3	female	7	Medical higher education institution, a teacher/dean	sighted
Ex4	female	16	Medical higher education institution, a teacher/a worker of the methodologist centre	sighted
Ex5	male	15	Medical higher education institution, a teacher	sighted
Ex6	female	7	Medical college, a teacher	sighted
Ex7	female	2	Medical college, a teacher/psychologist	sighted
Ex8	female	2	Higher education institution, a teacher, Head of the Department	sighted
Ex9	female	6	Secondary school of the 1–3 levels, a teacher	sighted
Ex10	female	34	Specialized school for visually impaired persons, a principal	sighted
Ex11	female	5	Medical college, a director	sighted

Additionally, for a VI massage therapist to provide holistic care to a client, it is crucial to establish open communication with other healthcare professionals. This involves understanding the client’s medical history, current treatment plans and protocols, and any particular issues or concerns that must be considered during the massage session. If any healthcare team member has prior experience working with VI individuals, it can significantly enhance communication between the VI massage therapist and the rest of the healthcare team.

3.2.2. Features of communication of VI persons

All respondents are convinced that the communicative competence of VI massage therapists is influenced by the time of vision loss and type of education.

Respondents have different perspectives on how congenital blindness or visual impairments acquired in early childhood or later in life affect the development of communication skills. Some of them are confident that

it is difficult for a person blind from birth to understand and distinguish other people’s emotions (Ex9, female, sighted),

Therefore, persons who are blind from birth face more significant challenges in developing communication skills compared to those who lose their vision later in life. Furthermore, the communication abilities of VI massage therapists may be further complicated if they have concomitant pathologies, such as congenital musculoskeletal defects or certain neurological disorders.

Other experts consider that persons who have been blind since birth or lost their sight at a very early age are more likely to socialize and interact with a broader range of people compared to those who lost their sight in adulthood. Learning to navigate the world without sight from a young age often fosters greater confidence and adaptability in social settings, which enhances their communicative openness. However, their communication skills are influenced by the limited number of channels, as they mainly rely on tactile and verbal methods.

Some respondents suppose that VI persons who lost their sight in later life have communication problems because

they believe that the world does not accept them, so they communicate only in their circle (Ex4, female, sighted).

The respondents suggest that the development of communication skills and socialization of VI persons depends on the type of secondary education they receive. Some respondents advocate for specialized education for blind/visually impaired children and believe that students who attend such institutions are more adaptable and possess better-developed communication skills. However, other respondents support inclusive education, saying:

Students who studied in inclusive environments are much more communicative than those who studied in specialized schools (Ex1, female, blind).

3.2.3. Barriers to the communication of VI persons

The respondents identify three main barriers to effective communication of VI massage therapists during their study, hiring process, and employment: 1) learning in isolation; 2) hypervigilance of parents; 3) a lack of non-verbal cues.

Some experts consider that learning in isolation, either in specialized educational institutions (boarding schools) or at home, creates an “artificial environment” and strengthens the social isolation of such children over a long period.

Unfortunately, those who study in specialized schools have a limited circle of communication topics. They are afraid of the world, they are so scared of sighted people, and they don't know how to communicate with other sighted people (Ex1, female, blind).

Alumni who have studied in specialized professional programmes claim that, on the one hand, it has a positive effect on them. Comfortable conditions for learning and living are created, and they do not feel any inconvenience in communicating with other blind or VI students and teachers. However, on the other hand, after completing education and facing challenges in the real world, particularly when finding a job, they have difficulties with orientation in space, self-confidence, and communication with other people.

Isolation, on the one hand, has a positive effect on us because we're in our element in an environment that feels natural and comfortable. But when we go into the world, into a cruel reality, we aren't perceived by others; it's awful (A4, male, visually impaired).

Hypervigilance of parents can lead to “social invalidation” of VI persons. As a result, these individuals fail to acquire but may even lose essential communication and social interaction skills, rendering them unable to make independent decisions and take responsibility for their lives. This can make it challenging for them to establish social connections in new environments, such as higher education institutions or healthcare facilities.

Parents often keep such persons “under the hood” without allowing them to make decisions or act independently, isolating them from real life. They do this to protect the child or to make life easier for themselves, as they need to make some effort; they simply “waved their hand” at such a child, considering them a “burden” incapable of an independent life (Ex9, female, sighted).

The absence of nonverbal cues creates obstacles for VI massage therapists in interpersonal interactions within a multidisciplinary rehabilitation team. It is difficult for such workers to communicate with colleagues because they cannot perceive facial expressions, which are essential for “reading” emotions. This lack of visual cues complicates their ability to understand the feelings, emotions and jokes of others, often leaving them uncertain about how to respond appropriately.

3.2.4. Tools and approaches to improve communicative competence of VI massage therapists

Respondents have different opinions about which of the two professional programmes, inclusive or special, is more likely to achieve effective learning outcomes in training VI nursing students. On the one hand, all respondents have a positive attitude towards the introduction of inclusion in the education of nurses. Yet some of them are worried about the difficulties in introducing inclusion, for example, insufficient educational and technical base and a shortage of trained specialists who could conduct classes in inclusive groups.

The respondents are convinced that developing educational hubs where VI students can work inclusively with necessary equipment and software with free access during extracurricular activities improves their communication skills. Similarly, advancing educational platforms with audio support for the continuous professional and personal growth of massage therapists, and the active introduction of barrier-free access both in educational institutions and in the workplace facilitate the mastery of communication skills of VI massage therapists. Additionally, it encourages greater engagement in interpersonal communication between VI students and their sighted peers within the educational institution.

Experts in education should focus on the competence approach, which forms not only the knowledge and skills, but also attitudes of future VI massage therapists. In particular, they emphasize that it is important to teach VI people not to be afraid of asking for help or being rejected.

The study participants view the primary approaches to enhance communicative competence as follows: fostering open communication to build trustful relationships, engaging students or employees with visual impairments in formal and informal activities throughout their entire educational or employment journey, utilizing tactile learning methods, and maintaining an empathetic attitude that does not reduce the requirements for students or employees with visual impairments.

3.2.5. Ineffective methods in teaching communication to VI students

The respondents emphasize that academic or workplace requirements should not be lowered for students or workers with VIs due to their disability. These individuals should not be treated as incapable of achieving high academic results and should be entitled to fair and objective evaluation. As noted by one LMA alumnus,

When teachers treat us with pity, we feel humiliated (A4, male, visually impaired).

It is necessary to deliberately use the verbal communication channel, avoiding ambiguous statements or unclear jokes. Phrases such as “look there” and “what do you see here ...” should be avoided, as should pointing with fingers, hands, or gaze when questioning students or assessing their knowledge at a lesson. Teachers should address students by their first names, as this fosters a more trusting atmosphere and enhances communication between teacher and student.

4. Discussion

This research represents the first comprehensive effort to conduct an in-depth study on visually impaired massage therapists in Ukraine, offering novel insights to both global and post-Soviet academic communities. It sheds light on the crucial importance of communicative competence for VI nursing students and identifies the barriers that impede the development of their interpersonal communication skills. Additionally, it has served as an impetus for rethinking educational models and tools designed to form the communicative competence of nursing students with disabilities in Ukraine.

The attitude toward VI massage therapists in Ukrainian society can be ambiguous. On the one hand, employers have a rather prejudicial attitude towards employees with disabilities, assuming that they require continuous assistance and support from their colleagues, supervisors, and administrators. On the other hand, although employers express concerns about hiring VI massage therapists, they ultimately view them from a utilitarian perspective and recognize the benefits of establishing effective communication with these workers. Individuals with visual impairments who have experienced multiple unsuccessful job interviews tend to value their employment and are less likely to seek alternative employment opportunities. As a result, they are regarded as loyal and dedicated employees.

The loss of sight amplifies the sense of touch; therefore, VI massage therapists have enhanced tactile skills. They are often perceived to possess a heightened sensitivity to clients' bodily responses during massage, relying entirely on their sense of touch and instinctual cognition. These exceptional abilities are widely believed to enable them to perform massages more effectively.

Massage therapists with visual impairments spend a considerable amount of their working time communicating with clients and colleagues. A client's satisfaction is influenced not only by the massage therapist's professional skills but also by their communicative competence. Research by Kania-Richmond et al. [35] suggests that effective interaction with clients during massage sessions is essential for addressing their unique needs. It supports the suggestion that the relationship might be important in determining the effectiveness of massage therapy [36]. Stewart-Richardson et al. [37] highlight that the participants appeared to view the therapeutic relationship as an essential tool to help them get to know their client well enough to adapt each element of the treatment to where the client is at physically, socially, and emotionally. It can be argued that massage is a time-intensive process where strong communication skills are crucial for attentively listening to clients, understanding their needs and concerns, and building meaningful relationships with them.

Massage therapists with visual impairments often require additional time to adjust to a healthcare team and may only sometimes be ready for the evolving difficulties. Their inability to perceive facial expressions and gestures can hinder their ability to fully understand colleagues' emotions and non-verbal cues, complicating formal and informal communication within the team. Sensory limitations also mean that VI massage therapists need more time to familiarize themselves with their spatial orientation to perform their workplace duties effectively. However, Johnston, Mackintosh and Alcock [38] argue that a positive attitude from clinical supervisors toward the functional performance of VI massage therapists can create valuable experiences for the entire healthcare team, fostering a collaborative work environment that enhances teamwork and team building within the facility. Undoubtedly, the previous work experience of VI employees significantly contributes to their professionalism and communication skills, thereby improving their employability.

Primary education significantly impacts the formation of communicative competence of visually impaired massage therapists. In Ukrainian society, the communication skills of VI children are likely to be hindered by a lack of resources, inadequate teachers' training, and the inability of educational institutions to effectively support these children. According to Mosca et al. [39], the development of communication skills in children with congenital visual impairments is influenced by the level of a country's development. In economically advanced countries, resources are available for specialists and parents to stimulate neuroplasticity at an early age, helping to overcome communication deficits. However, in developing countries, it is expected that communication disorders often arise due to a lack of resources combined with a stressful environment [40]. Currently, typhlopedagogy is insufficiently taught in pedagogical colleges and universities in Ukraine. While 10 percent of advanced training courses for teachers focus on children with special educational needs (equivalent to 15 out of 150 h), these short-term training sessions are insufficient for adequately preparing teachers to work effectively with children with disabilities [41].

There are differing perspectives on whether inclusive or specialized education is more effective for developing the communication skills of VI students. Ajuwon and Oyinlade [42] and McMahon [43] argue that education in specialized institutions or special education programmes positively impacts the development and formation of communicative competence. These institutions typically have smaller student populations, all the necessary equipment, adapted materials, and other educational resources. Teachers are carefully selected for their psychological and professional readiness to work with visually impaired students, and correctional educators provide personalized assignments tailored to each student.

On the other hand, studying in specialized institutions can negatively affect the development of students' communication skills by creating an "artificial environment" where VI students have limited control over whom, how, and when they communicate. Their social interactions are primarily restricted to fellow students with visual impairments and their teachers. This confinement deprives them of the opportunity to make independent choices and take responsibility for their own lives, ultimately increasing social isolation and leading to "social invalidation" in the future. Punia and Berwal [44] emphasize that the sense of isolation among students in specialized schools arises from spending extended periods away from family and society and from a lack of opportunities to interact with people outside the educational institution.

The inclusive education model has both advantages and disadvantages. On the one hand, inclusion fosters higher self-esteem and social skills among students with disabilities, enhancing their integration into society [45]. However, when inclusion is poorly implemented, it can negatively impact the way individuals with disabilities are treated and perceived as whole and complex human beings.

It is difficult for such students to succeed academically when educational institutions or teachers are not adequately prepared for inclusion, and their peers view them as incapable of learning or performing tasks. This situation not only reinforces social perceptions that persons with disabilities are unable to study and work on an equal basis with others but also raises doubts about the effectiveness of inclusion as a successful educational model that ensures equal rights and opportunities for persons with disabilities.

Inclusion is considered to be optimal for teaching VI nursing students. However, its implementation can be challenging due to the need for more trained and motivated specialists teaching in inclusive settings. To organize an inclusive educational process, particularly for practical classes, teachers must invest significantly more time and resources in preparing to teach VI nursing students, as these students may not be able to perform all the practical tasks required for the nursing profession.

It is feasible to make assumptions that full inclusion, where students with and without visual impairments study together, creates difficulties for visually impaired students who need more prior experience in learning in such settings. Hatlen [46] suggests that students in inclusive environments often remain socially isolated because they miss opportunities to develop essential social interaction skills such as mobility, spatial awareness, and non-verbal communication. These skills should not be acquired in an inclusive environment but should instead be explicitly taught as part of an extended core curriculum. Therefore, specialized educational programmes should be adjusted to meet the needs of VI individuals who wish to pursue a nursing degree.

Given the limitations and drawbacks of both inclusive and special education, we propose a “reasonable accommodation” model that integrates elements of both approaches. This model ensures that students with and without visual impairments have equal access to choose and attend all theoretical classes. However, for practical sessions, it is advisable to organize VI students into a separate subgroup where they can learn through a specialized programme adapted to their needs.

The “reasonable accommodation” model can be effective if barrier-free access is ensured in all forms of activities and communication, including physical, informational, educational, and digital domains. Combining a descriptive teaching method with tactile mannequins and guidance of sighted students can give positive outcomes in mastering the material and establishing effective communication between students and teachers. Using educational aids based on audio and the availability of specialized equipment such as DAISY players, Screen Readers, and TTS Software opens new opportunities for VI students in academic settings. The significance of interactive e-learning tools that facilitate audio and tactile learning as valuable resources is supported by the findings of Klingenberg, Holkesvik, and Augestad [47], Klingenberg et al. [48], Teke and Sozibilir [49].

A teacher working with VI nursing students should implement and apply student-centered learning principles, provide ongoing feedback during classes, employ innovative teaching methods, such as the “flipped classroom,” use an individual approach to each student, and actively engage students in group work. All these techniques are aimed at developing the communicative competence of VI students. The teacher must be professionally and psychologically prepared to work with VI students, demonstrating empathy and understanding their challenges without focusing on their disability. Furthermore, the teacher should be capable of building trusting relationships, fostering meaningful interactions, and maintaining open communication at all times [50].

Learning and participating in extracurricular activities is essential for VI students’ overall development. Engaging in these activities alongside their non-disabled peers promotes the growth of crucial communication skills. Moreover, it also forms a more empathetic and understanding attitude among non-disabled students toward their peers with disabilities. Through these interactions, non-disabled students learn to be more attentive to the needs of VI students and how to offer appropriate assistance. This interaction helps reduce prejudice against individuals with disabilities by fostering greater understanding and cooperation between sighted and VI students.

5. Limitations

The limitations of this study relate to its focus on visually impaired individuals within a single educational and professional group - massage therapists. Therefore, the findings may not accurately represent the broader population of visually impaired individuals in other educational and professional groups. Consequently, the results of this article should be explicitly interpreted specifically concerning the study population.

6. Conclusions

One of this study’s most significant findings is identifying three main barriers to communication among VI nursing students. They include the experience of learning in isolation in specialized education institutions or at home, the hypervigilance of parents, and the inability to establish eye contact and thus read non-verbal cues. These barriers create difficulties for VI massage therapists to communicate effectively during studying, the hiring process, and in the workplace. To overcome these barriers, it is necessary to use interactive teaching methods, involve VI students in formal and informal activities during their studies, ensure educational and information accessibility, have an individual approach to these students, and have an empathetic attitude.

Inclusive and special education have advantages and disadvantages when teaching VI nursing students. Inclusive education offers benefits such as enhancing communication skills through extensive interaction and engagement in formal and informal academic activities. Moreover, it fosters the cultivation of a tolerant mindset and unprejudicial perception of individuals with disabilities. However, inclusive teaching requires considerably more time and resources, and if the educational institution or teachers are not prepared for inclusion, VI students may face difficulties in their learning process. Consequently, their peers may perceive them as incapable of successful learning. On the other hand, special education appears appealing for VI nursing students due to several factors: 1. The class size tends to be relatively small, ensuring more individualized attention. 2. Specialized educational institutions are equipped with the necessary tools, adapted materials, and other resources to cater to the specific needs of VI students. 3. Teachers are carefully selected, taking into account their psychological and professional readiness to work with VI students. However, the special

education model negatively impacts the development of communication skills of VI students, as it creates an “artificial environment” that reinforces social isolation.

Therefore, we suggest the “reasonable accommodation” model, which can effectively overcome inequalities by providing quality education to persons with sensory disabilities.

Data availability statement

Data presented in this manuscript are sufficient to support the conclusions of the study. Additional data can be made available upon request.

CRediT authorship contribution statement

Nataliya Oliynyk: Writing – original draft, Supervision, Project administration, Methodology. **Irena Khmilyar:** Writing – original draft, Resources, Methodology, Investigation. **Natalia Rudakova:** Writing – original draft, Resources, Methodology, Investigation. **Oresta Klontsak:** Writing – original draft, Methodology, Investigation, Data curation. **Maria Shvab:** Supervision. **Nynke de Jong:** Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

- [1] United Nations, Convention on the rights of persons with disabilities. <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/optional-protocol-to-the-convention-on-the-rights-of-persons-with-disabilities.html>, 2006.
- [2] World Health Organization, Disability. <https://www.who.int/news-room/fact-sheets/detail/disability-and-health>, 2023.
- [3] State Statistics Service of Ukraine, in: I.E. Werner (Ed.), Ukrainian Statistical Yearbook for 2021, State Statistics Service of Ukraine, 2022. Kiev, https://ukrstat.gov.ua/druk/publicat/kat_u/2022/zb/11/Yearbook_2021.pdf.
- [4] L.M. Yakusheko, Actual problems of social protection of people with disabilities, Analytical Note, Series “Social Policy”. 9 (2019) 11–14. <https://niss.gov.ua/sites/default/files/2019-12/analit-yakushenko-social-policy-9-2019.pdf>.
- [5] Law on the fundamentals of social security of the disabled in Ukraine, Article 19, <https://zakon.rada.gov.ua/laws/show/875-12#Text>, 2017, 2017.
- [6] I. Fedorovych, Equal employment opportunities in Ukraine – is there still discrimination and how should we tackle it? The Open Society Foundations (December 2016). https://rpr.org.ua/wp-content/uploads/2017/02/Renaissance_A4_2Equal-employment.pdf.
- [7] S. Dariievska, T. Martsenyuk, Experience of employment of people with disabilities in Ukraine (Anti-Terrorist operation veterans as a case study), *NaUKMA Research Papers Sociology* 3 (2020) 37–48, <https://doi.org/10.18523/2617-9067.2020.3.37-48>.
- [8] V. Caron, A. Barras, R.M.A. van Nispen, N. Ruffieux N, Teaching social skills to children and adolescents with visual impairments: a systematic review, *J. Vis. Impair. Blind.* 117 (2) (2023) 128–147, <https://doi.org/10.1177/0145482X231167150>.
- [9] H. Morgan, A.-M. Houghton, Inclusive curriculum design in higher education: considerations for effective practice across and within subject areas, *The Higher Education Academy* 5 (2011). <https://www.heacademy.ac.uk/knowledge-hub/inclusive-curriculum-design-higher-education>.
- [10] A. Moran, A., can a competence or standards model facilitate an inclusive approach to teacher education? *Int. J. Incl. Educ.* 13 (1) (2009) 45–61, <https://doi.org/10.1080/13603110701273675>.
- [11] T. Booth, M. Ainscow, M., *Index for Inclusion: Developing Learning and Participation in Schools*, Centre for Studies on Inclusive Education, Bristol, 2002.
- [12] Law on education, Article 6 (Ukraine), https://mon.gov.ua/ua/npa/law-education#_Toc493603843, 2017, 2017.
- [13] D. Zhang, L. Landmark, A. Reber, H. Hsu, O. Kwok, M. Benz, University faculty knowledge, beliefs, and practices in providing reasonable accommodations to students with disabilities, *REM SPEC EDUC.* 31 (4) (2010) 276–286, <https://doi.org/10.1177/0741932509338348>.
- [14] S. Quinlivan, Reasonable accommodation in education, *The Irish Community Development Law Journal.* 4 (2) (2015) 16–28. <https://ssrn.com/abstract=3089551>.
- [15] D. Jansen, K. Petry, E. Ceulemans, I. Noens, D. Baeyens, Functioning and participation problems of students with ASD in higher education: which reasonable accommodations are effective? *Eur. J. Spec. Needs Educ.* 32 (2017) 71–88, <https://doi.org/10.1080/08856257.2016.1254962>.
- [16] M. Bilka, Medical Educational Institutions in Ukraine Open Their Doors to Blind Students, Lviv City Council, December 04, 2015. <https://city-adm.lviv.ua/news/science-and-health/medicine/228807-medychni-navchalni-zaklady-ukrainy-vidchyniaut-dveri-nezriachym-studentam>, 2015.
- [17] Hui-Ying Chu, Hui-Shan Chan, The effect of vocational training on visually impaired people’s quality of life, *Healthcare* 12 (6) (2024) 692, <https://doi.org/10.3390/healthcare12060692>.
- [18] E. Sumalinog, G. Sambrana, W.D. Diaz, L.K. Bebero, Emerging communication gap to the lives of differently abled individuals working in a blind massage service, *American Journal of Multidisciplinary Research and Innovation* 2 (1) (2023) 1–8, <https://doi.org/10.54536/ajmri.v2i1.1076>.
- [19] Law on rehabilitation in healthcare System (Ukraine), <https://zakon.rada.gov.ua/laws/show/1053-20#Text>, 2022 [in Ukrainian], 2022.
- [20] M. Braš, V. Dordević, N. Pjevač, I. Duric, Healthy communication in the promotion of healthy aging during COVID-19 pandemic, *Croat. Med. J.* 61 (2) (2020) 177–179. <https://doi.org/10.3325/cmj.2020.61.177>.
- [21] B. Ahlsen, A.B. Nilsen, A. B, Getting in Touch: Communication in Physical Therapy Practice and the Multiple Functions of Language, 2022 882099, <https://doi.org/10.3389/fresc.2022.882099>. PubMed. Aug 4:3.
- [22] D. Gold, A. Shaw, K. Wolfe, The social lives of Canadian youths with visual impairments, *J. Vis. Impair. Blind. (JVIB)* 104 (7) (2010) 431–443.

- [23] H. Lifshitz, I. Hen, I. Weisse, Self-concept, adjustment to blindness, and quality of friendship among adolescents with visual impairments, *J. Vis. Impair. Blind. (JVIB)* 101 (2) (2007) 96–107, <https://doi.org/10.1177/0145482X0710100204>.
- [24] M. Pinquart, J. Pfeiffer, J., Associations of extroversion and parental overprotection with forming relationships with peers among adolescents with and without visual impairments, *J. Vis. Impair. Blind. (JVIB)* 105 (2) (2011) 96–107.
- [25] D. Jindal-Snape, Self-evaluation and recruitment of feedback for enhanced social interaction by a student with visual impairment, *J. Vis. Impair. Blind. (JVIB)* 99 (8) (2005) 486–498.
- [26] S. Mallineni, R. Nutheti, S. Thangadurai, P. Thangadurai, P., Non-verbal communication in children with visual impairment, *Br. J. Vis. Impair.* 24 (1) (2006) 30–33.
- [27] K.E. Wolffe, Skills for success: preparing blind and low vision children and youth for life beyond school, *Int. Congr.* 1282 (2008) 964–968.
- [28] S. French, J. Swain, J., *Understanding Disability: A Guide for Health Professionals*, Churchill Livingstone, Edinburgh, 2008.
- [29] M. Oliver, The social model in action: if I had a hammer, in: Colin Barnes, Geof Mercer (Eds.), *Implementing the Social Model of Disability: Theory and Research*, The Disability Press, Leeds, 2002, pp. 18–32.
- [30] M. Oliver, C. Barnes, Disability studies, disabled people and the struggle for inclusion, *Br. J. Sociol. Educ.* 31 (5) (2010) 547–560.
- [31] A.V. Aneraye, S.K. Shirpurkar, R.K. Pandey, S.S. Warle, Bhawna, study of communication ability of visually impaired adults, *The Academic* 1 (2 July–September) (2023) 225–233. <https://theacademic.in/wp-content/uploads/2023/10/225-235.pdf>.
- [32] American Foundation for the Blind (AFB), Educating students with visual impairments for inclusion in society: a paper on the inclusion of students with visual impairments. <http://www.afb.org/Section.asp?SectionID=44&TopicID=189&DocumentID=1344>, 2005.
- [33] C.U. Nnama-Okechukwu, P.N. Chukwuka, U.O. Okoye, Challenges with institutional support services for undergraduate students with visual impairment in University of Nigeria Nsukka, *J. Evid. Base Soc. Work* 17 (6) (2020) 677–695. <https://www.tandfonline.com/doi/abs/10.1080/26408066.2020.1787288>.
- [34] C.R. Mendonça, K.T.D. Souza, J.T. Arruda, M. Noll, N.N. Guimarães, Human anatomy: teaching–learning experience of a support teacher and a student with low vision and blindness, *Anat. Sci. Educ.* 14 (5) (2020) 682–692, [abs/10.1002/ase.2058](https://doi.org/10.1002/ase.2058).
- [35] A. Kania-Richmond, B. Reece, E. Suter, M. Verhoef, The professional role of massage therapists in patient care in Canadian urban hospitals—a mixed methods study, *BMC Complement Altern Med* 15 (2015) 20, <https://doi.org/10.1186/s12906-015-0536-4>.
- [36] T. Clark, The psychotherapeutic relationship in massage therapy, *Int J Ther Massage Bodywork* 12 (3) (2019) 22–35, <https://doi.org/10.3822/ijmb.v12i3.447>.
- [37] J.L. Stewart-Richardson, S.C. Hopf, J. Crockett, P. Southwell, P., What is effective in massage therapy? Well, “it depends...”: a qualitative study of experienced orthopaedic massage therapists, *Int J Ther Massage Bodywork* 17 (1) (2024) 4–18, <https://doi.org/10.3822/ijmb.v17i1.935>.
- [38] K. Johnston, S. Mackintosh, M. Alcock, Reconsidering inherent requirements: a contribution to the debate from the clinical placement experience of a physiotherapy student with vision impairment, *BMC Med Education.* 16 (74) (2016) 682–692, <https://doi.org/10.1186/s12909-016-0598-0>.
- [39] R. Mosca, A. Kritzinger, J. van der Linde, Language and communication development in preschool children with visual impairment: a systematic review, *S. Afr. J. Commun. Disord.* 62 (1) (2015) e1–e10, <https://doi.org/10.4102/sajcd.v62i1.119>.
- [40] C. Gilbert, A. Foster, Childhood blindness in the context of VISION 2020: the right to sight, *Bull. World Health Organ.* 79 (3) (2001) 227–232. <https://www.scielosp.org/pdf/bwho/v79n3/v79n3a11.pdf>.
- [41] Resolution of the Cabinet of Ministers of Ukraine of August 21, 2019 N^o 800, The issues of professional development of pedagogical and scientific-pedagogical workers. <https://zakon.rada.gov.ua/laws/show/800-2019-%D0%BF#Text>, 2019, 2019.
- [42] P.M. Ajuwon, A.O. Oyinlade, Educational placement of children who are blind or have low vision in residential and public schools: a national study of parents’ perspectives, *J. Vis. Impair. Blind. (JVIB)* 102 (2008) 325–339, <https://doi.org/10.1177/0145482X0810200602>.
- [43] E. McMahon, The role of specialized schools for students with visual impairments in the continuum of placement options: the right help, at the right time, in the right place, *J. Vis. Impair. Blind. (JVIB)* 108 (6) (2014) 449–459, <https://doi.org/10.1177/0145482X141080060>.
- [44] P. Punia, S. Berwal, S., Alienation in students with visual impairment in special and inclusive schools: a study of Haryana state, *J. Indian Acad. Appl. Psychol.* 43 (1) (2017) 67–74. <https://www.researchgate.net/publication/313912855>.
- [45] C. Savich, Inclusion: the Pros and Cons - A Critical Review, Online Submission, 2008. <https://files.eric.ed.gov/fulltext/ED501775.pdf>.
- [46] P. Hatlen, Is social isolation a predictable outcome of inclusive education? *J. Vis. Impair. Blind. (JVIB)* 98 (2004) 676–678, <https://doi.org/10.1177/0145482X0409801102>.
- [47] O.G. Klingenberg, A.H. Holkesvik, L.B. Augestad, Digital learning in mathematics for students with severe visual impairment: a systematic review, *Br. J. Vis. Impair.* 38 (1) (2020) 38–57, <https://doi.org/10.1177/0264619619876975>.
- [48] O. Klingenberg, A. Holkesvik, L. Augestad, E. Erdem, Research evidence for mathematics education for students with visual impairment: a systematic review, *Cogent Education.* 6 (2019) 38–57, <https://doi.org/10.1080/2331186X.2019.1626322>.
- [49] D. Teke, M. Sozibilir, Teaching energy in living systems to a blind student in an inclusive classroom environmen, *Chem. Educ. Res. Pract.* 20 (4) (2019) 890–901, <https://doi.org/10.1039/C9RP00002J>.
- [50] P.F. Hunt, Inclusion and Education, Paper Commissioned for the 2020 Global Education Monitoring Report, UNESCO, 2020. <https://unesdoc.unesco.org/ark:/482>.