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Teachers' Responsiveness in Physical Activities and Sports for Students With Sensory Impairments: A Qualitative Case Study From Two Special Schools in Ethiopia

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Research Article

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Abstract

Background

Participation in physical activities is fundamental to children's holistic development, yet students with special needs often face barriers to involvement. In Ethiopia, children with sensory impairments are educated in special schools, but little is known about physical education delivery in these settings. A critical challenge is the acute shortage of trained manpower in adapted physical education, with most special schools employing only one PE teacher.

Purpose

This qualitative case study explored teachers' responsiveness in physical activities for students with special needs in two Ethiopian special schools: Shashemene School for the Blind and Hosanna School for the Deaf.

Methods

Two PE teachers (one from each school) participated in semi-structured interviews. Focus group discussions were conducted with seven students and one principal from each school. Data were analyzed thematically with cross-case analysis.

Findings:

Four themes emerged: (1) improving social skills; (2) assisting students' learning needs; (3) student interest and satisfaction; and (4) physical capability and well-being. However, teacher shortage was a critical challenge. Both schools employed only one PE teacher, responsible for all students and grades. Teachers reported overwhelming workloads, limited individualization, and a lack of formal training. Despite constraints, teachers demonstrated positive responsiveness—verbal instruction and physical contact for visually impaired students, and sign language with visual demonstration for hearing impaired students.

Conclusion

Teacher responsiveness is critical for successful physical education for students with sensory impairments. However, the acute shortage of trained manpower severely constrains quality. The study underscores the urgent need for adapted physical education specialist training, increased staffing, appropriate equipment, and curriculum integration in Ethiopian special schools.

1 INTRODUCTION

1.1 Background

Participation in physical activities and sports is fundamental to human development, enabling individuals to form social connections, build competencies, and achieve psychological and physical health. Systematic reviews have demonstrated that sport and physical recreation provide small to medium positive effects on activity limitations and physical impairment for children and young people with physical disabilities [1]. Physical activity significantly improves balance ability in children and adolescents with intellectual disabilities (SMD = 1.19) [2]. Furthermore, physical exercise positively impacts body mass index, cardiometabolic health, bimanual activities, motor and cognitive functioning, balance, and coordination in children with varying disabilities [3].

Sport encompasses all forms of physical activity—play, exercise, recreation, organized or casual competition—that contribute to physical fitness, mental wellbeing, and social interaction. Participation in physical activity is important for health, well-being, and quality of life and is associated with improved physical, social, cognitive, and psychological function, especially for children and youth with disabilities [4]. Multi-sport activity days have been shown to provide positive sport experiences for children and adolescents with disability, specifically increasing social connections, a sense of commonality and belonging, and increased self-esteem [5]. Furthermore, integrating children and adolescents with special educational needs into sports activities has a positive effect on their well-being [6].

Teacher Responsiveness is central to effective instruction in inclusive physical education settings. Herring and Wahler [7] defined teacher responsiveness as the extent to which a teacher's response matches student behavior, protecting against problematic classroom behaviors. Harrist and Waugh [8] described responsiveness as the degree to which an individual's response appropriately addresses another's behavior within a timely fashion. In special education contexts, teacher responsiveness encompasses not only immediate instructional adjustments but also sustained sensitivity to students' learning needs, emotional states, and developmental trajectories. Moyles [9] articulated the qualities of effective teachers, including patience, understanding of children with special needs, respect for individuals, a constructive attitude, approachability, fairness, reliability, and openness.

Adapted Physical Education (APE) is defined as "the art and science of developing, implementing, and monitoring a carefully designed physical education instructional program for a learner with a disability, based on a comprehensive assessment, to give the learner the skills necessary for a lifetime of rich leisure, recreation, and sport experiences to enhance physical fitness and wellness" [10]. Sherrill [11] described Adapted Physical Activity as an umbrella term encompassing physical education, recreation, dance, sport, fitness, and rehabilitation for individuals with impairments across the lifespan. Essential knowledge and skills for adapted physical education teachers include: comprehensive content knowledge in disability studies, assessment methods, instructional design, special education law, IEP development, adaptations and modifications, behavior management, individual teaching and learning styles, collaboration and consultation skills, advocacy, inclusion practices, and assistive technology [12].

Factors influencing teachers' attitudes toward inclusive physical education have been extensively studied. A scoping review of the literature on teachers' perceptions and practices of inclusion in physical education found that teachers generally support the ideal of inclusion, but attitudes are mixed, largely influenced by the child's type of disability [13]. Teachers also face limited resources and support, and when teachers feel pedagogically incompetent, this is reflected in negative attitudes and perceptions toward inclusion [13]. Studies have shown associations between physical education teachers' attributes—including age, gender, years of experience, number of adapted physical education courses taken, exposure to individuals with disabilities, and perceived competence—and their attitudes toward teaching students with disabilities.

Engaging in physical activity has been shown to offer numerous health benefits for children with disabilities, such as improved physical health, reduced social isolation, and enhanced mental well-being [14]. Sport-based interventions effectively improve physical and psychosocial outcomes in children and adolescents with chronic diseases [15]. School-based physical activity programs for children and adolescents with disability can improve measures of cognition and mental health [16], and cognitively engaging physical activity has positive effects on executive functions in children with disabilities [17].

Specific benefits for students with sensory impairments: For blind or visually impaired children, additional benefits of physical activity include social inclusion and reduced risk of falls [18]. For children with hearing impairment, exercise training programs positively impact static balance ($p = 0.001$), postural sway ($p = 0.001$), and dynamic balance ($p = 0.001$) with level 1a evidence [19].

The shortage of trained manpower in adapted physical education is a significant challenge in many developing countries. Research across sub-Saharan Africa has identified inadequate teacher training as a primary barrier to inclusive physical education. Studies in Ghana found that PE teachers face significant barriers including lack of training, inadequate facilities, resource constraints, and negative attitudes toward disability [20]. In Ethiopia, research has found that students with disabilities face significant barriers in health and physical education practical classes due to the absence of an inclusive curriculum that accommodates learners with visual, hearing, and mobility impairments [21]. The Special Needs and Inclusive Education Strategy of Ethiopia [22] recognizes the need for specialized teachers, but implementation has lagged significantly.

Researcher's Background and Positionality: This study is informed by the researcher's interdisciplinary background, which spans inclusive education and rehabilitation—providing a comprehensive understanding of the educational and social development needs of students with sensory impairments—and exercise physiology, which offers the scientific foundation for understanding the health and motor benefits of physical activity. This dual perspective enables a holistic approach to examining how teachers' responsiveness in physical activities and sports contributes to students' overall development.

1.2 The Ethiopian Context

In Ethiopia, education for children with sensory impairments has largely been provided through special schools operated by non-governmental organizations and faith-based institutions. Shashemene School for the Blind, established with support from CNEWA (Catholic Near East Welfare Association) and administered by Franciscan Sisters of St. Mary of the Angels, has served students with visual impairments for decades [23]. Hosanna School for the Deaf, founded 42 years ago by the Ethiopian Evangelical Church Mekane Yesus Development and Social Services Commission, currently serves 234 deaf boarding students from across Ethiopia [24].

Most special schools in Ethiopia operate with only one physical education teacher, regardless of the number of students or the diversity of disabilities served. Shashemene School for the Blind and Hosanna School for the Deaf are representative of this reality: each school employs a single PE teacher responsible for delivering all physical education instruction, organizing sports activities, and addressing the diverse needs of students with sensory impairments. This staffing shortage severely constrains the quality and scope of physical education programming, limits individualized instruction, and places an overwhelming burden on the teachers. The lack of specialized training in adapted physical education further compounds these challenges.

1.3 Statement of the Problem

Research consistently indicates that students with special needs are likely to be further limited in their participation in physical activities than their peers—a gap that widens as children develop into adults [25]. In Ethiopia, students with disabilities have repeatedly been excluded from sports and physical activities in schools.

Several factors contribute to this problem. First, physical education teachers in special schools often lack specialized training in adapted physical education. A study from Dilla University found that the absence of an inclusive curriculum in the Health and Physical Education subject fails to accommodate learners with visual, hearing, and mobility impairments [21]. Second, inadequate equipment and facilities severely constrain programming. Third, the acute shortage of trained manpower in adapted physical education—with many schools employing only one PE teacher—limits the quality and individualization of instruction. Fourth, the curriculum of physical education governed by the Ministry of Education has not been consistently implemented in special schools, many of which operate under foreign donor governance structures. Fifth, there is limited empirical research on actual practices and teacher responsiveness in Ethiopian special schools.

Research Gap: While there is growing scholarship on inclusive physical education globally, the specific context of Ethiopian special schools remains understudied. No known research has systematically examined teachers' responsiveness in physical activities and sports for students with sensory impairments in Ethiopia, nor has research examined the impact of teacher shortage on adapted physical education delivery. This study addresses these gaps by providing empirical evidence from two special schools.

1.4 Research Questions

The overarching research question was: What do teachers understand about what and how students with special needs learn through their involvement in physical activities and sports?

Sub-questions included:

1. How do physical education teachers teach physical activities and sports to students with special needs?
2. To what extent are students with special needs involved in physical activities and sports?
3. Are physical education teachers' qualifications sufficient to meet the needs of students with special needs?
4. What is the nature of interaction between physical education teachers and students in physical activities and sports?
5. How does the shortage of trained manpower in adapted physical education affect the teaching and learning of physical activities and sports?

1.5 Objectives

The general objective was to determine teachers' responsiveness regarding what and how students with special needs learn during their involvement in sports and physical activities in Shashemene School for the Blind and Hosanna School for the Deaf.

Specific objectives were:

1. To indicate teachers' management and teaching of sports and physical activities at school
2. To determine whether students with special needs have sporting opportunities at school
3. To evaluate teachers' potential responsiveness toward the needs of students with special needs
4. To assess the teaching-learning environment in sports and physical activities at school
5. To show the contribution of sports and physical activities to the development of cognitive, affective, and psychomotor domains for students with special needs
6. To examine the impact of the shortage of trained manpower on physical education delivery in special schools

2 METHODS

2.1 Research Design

A qualitative case study design was employed to investigate teachers' responsiveness regarding what and how students with special needs learn through their involvement in physical activities and sports. The case study approach was selected for its capacity to provide in-depth, contextualized understanding

of the phenomenon [26]. The cases comprised two physical education teachers—one from Shashemene School for the Blind and one from Hosanna School for the Deaf—from whom primary data were collected. The study also captured the perspectives of students and principals to triangulate the findings. The study was descriptive in nature, with data described and explained case by case and then cross-case analyzed, triangulated through focus group discussions.

2.2 Study Sites

Shashemene School for the Blind: Located in Shashemene, Oromia Region, this school serves students with visual impairments from across Ethiopia. Established with support from CNEWA and administered by Franciscan Sisters, the school provides education from elementary through secondary levels [23]. The school employs one physical education teacher responsible for all students across all grade levels.

Hosanna School for the Deaf: Located in Hosanna, Southern Nations, Nationalities, and Peoples' Region (SNNPR), this school was founded 42 years ago by the Ethiopian Evangelical Church Mekane Yesus Development and Social Services Commission. The school currently serves 234 deaf boarding students (112 girls) from across Ethiopia [24]. The school employs one physical education teacher responsible for all 234 students.

2.3 Participants

2.3.1 Teachers

Two physical education teachers (one from each school) participated in the study. These were the only physical education teachers employed at each school, reflecting the acute shortage of trained manpower in adapted physical education in Ethiopian special schools. Pseudonyms (Abush and Mamush) were assigned to protect the teachers' identities. Abush had taught for 28 years at Shashemene School for the Blind and held a Teachers Training Institute (TTI) certificate in education. He had no formal training in adapted physical education but had developed expertise through decades of practical experience. Mamush had taught for 15 years at Hosanna School for the Deaf, held a Bachelor's degree in Geography, and was pursuing postgraduate studies in special needs education. Mamush had received various short-term training certificates in adapted physical education from foreign trainers, but lacked formal, sustained professional development in this specialty.

2.3.2 Students

Fourteen students (seven from each school) participated in focus group discussions. Selection criteria included: (a) having a sensory impairment; (b) attending special school education; (c) being within the age range 13 to 16 years; and (d) having the ability to communicate effectively in a group-interview setting. All student names have been replaced with pseudonyms to protect their identities.

2.3.3 School Principals

One principal from each school participated in focus group discussions.

The fact that each school employed only one PE teacher—despite serving significant populations of students with disabilities—highlights the systemic human resource constraints in Ethiopian special education. This staffing pattern meant that the participating teachers were responsible for all physical education instruction, assessment, and program development, with limited support or collaboration from other specialists.

2.4 Data Collection Instruments

Three instruments were employed:

2.4.1 Semi-Structured Interviews

Individual interviews were conducted with the two teachers covering: teaching background and qualifications; knowledge about students with special needs; organization of sports and physical activities; teaching methods and adaptations; perceptions of the significance of physical activities for students with special needs; and the impact of staffing shortages on their work. Interviews were conducted in Amharic and audio-recorded.

2.4.2 Unobtrusive Observation

Observations of physical education classes were conducted to verify teacher practices. A checklist was developed based on adapted physical education standards.

2.4.3 Focus Group Discussions

Separate FGDs were conducted with students and principals at each school. Students were asked about their experiences, teacher interactions, benefits of participation, and challenges. Principals were asked about teacher training, curriculum implementation, school support for physical activities, and staffing challenges.

2.5 Data Collection Procedure

Ethical approval was obtained from the researcher's institution. Informed consent was secured from all participants. Interviews were conducted in school staff offices during agreed times. For students with hearing impairment, a sign language interpreter facilitated communication; the interpreter was seated in front of students and interpreted both directions. The moderator was able to record the interpreter's voice, maintaining validity as the interpreter communicated in both verbal and sign language.

Focus group discussions lasted 90–120 minutes and were tape-recorded. Field notes documented non-verbal communication and emerging themes.

2.6 Data Analysis

Interviews were transcribed verbatim from audio recordings. A step-by-step interpretative approach was used to cross-check for similar ideas across transcripts. Emerging themes were identified and developed through inductive coding. Observation findings were analyzed using the adapted physical education checklist. FGD data were thematically analyzed. Data from all sources were triangulated to enhance validity.

2.7 Ethical Considerations

This study adhered to strict ethical guidelines for research involving human subjects, in accordance with the principles outlined in the Declaration of Helsinki and the ethical standards of Dilla University.

Institutional Approval: Ethical clearance for this study was obtained from the Institutional Review Board (IRB) of Dilla University prior to the commencement of data collection.

Informed Consent: All participants—including teachers, students (with parental/guardian consent), and school principals—provided written informed consent after being fully informed of the study's purpose, procedures, potential risks, and benefits. Participants were explicitly informed of their right to withdraw from the study at any time without penalty.

Permission for School Name Disclosure: The principals of both participating schools—Shashemene School for the Blind and Hosanna School for the Deaf—granted explicit, written permission for the schools' names to be disclosed in this publication. This permission was obtained prior to data collection and is documented in the study's records.

Protection of Individual Identities: To protect the confidentiality and anonymity of individual participants, all names of teachers, students, and administrators have been replaced with pseudonyms throughout this manuscript. The pseudonyms used—"Abush" and "Mamush" for the teachers, and generic identifiers for students—were carefully selected to be culturally appropriate and respectful while ensuring that participants cannot be identified.

Data Security: All data collected during this study—including audio recordings, transcripts, field notes, and consent forms—are stored securely in password-protected files and locked cabinets accessible only to the research team. Data will be retained for a period of five years after publication and then securely destroyed.

Cultural Sensitivity: The research was conducted with full respect for the cultural values and protocols of the participating schools and communities. The researcher maintained ongoing communication with school administrators and community leaders throughout the study.

3 RESULTS

3.1 Teacher Profiles

Case 1: Abush (Pseudonym) – Shashemene School for the Blind

Abush (a pseudonym) had taught for 28 years at Shashemene School for the Blind. He held a Teachers Training Institute (TTI) certificate in education. He had no formal training in adapted physical education. His teaching experience was extensive, and he had developed specialized approaches over decades of work with students with visual impairment. He was the only PE teacher at the school.

Case 2: Mamush (Pseudonym) – Hosanna School for the Deaf

Mamush (a pseudonym) had taught for 15 years at Hosanna School for the Deaf. He held a Bachelor's degree in Geography and was completing postgraduate studies in special needs education. He had received various short-term training certificates in adapted physical education from foreign trainers. He was the only PE teacher at the school, responsible for 234 students.

3.2 Major Themes

Four major themes emerged from the analysis.

3.2.1 Improving Social Skills Through Sports Participation

Both teachers emphasized the social benefits of physical activity participation. Abush stated: *"The social characteristics that I have seen between these students are that they learn involvement, they also learn by what means to help one another, meet with one another... this thoughtful learning from former and new peers in any way supports them to build friendship."*

Mamush similarly expressed: *"Students with hearing impairment teamwork in physical activities and sports develops their confidence, creativity, conveying information and are competent to work together with one another."*

Students confirmed these observations. FGD participants reported that teacher responsiveness in physical activities improved their self-worth, expression, communication, and ability to collaborate. Principals noted that as a result of teacher responsiveness, students were "conscious on one another's desires as they interrelate and support each other."

3.2.2 Assisting Students in Conjunction with Learning Needs

Teachers employed different strategies based on students' impairments. For students with visual impairment, Abush emphasized verbal instruction and physical contact: *"Since students with visual impairment may not be having clear sight to observe as he demonstrated to the whole class, at that time the teacher has to come in body contact with the student to demonstrate him/her on how to perform the activity."*

For students with hearing impairment, Mamush used sign language and visual demonstration: *"I consume fully hand sign for giving directions, and use the flags for beginning and finishing the game."*

Both teachers emphasized peer assistance. Abush noted: *"We promote and use older students to support the new comers as a way of encouraging and build them feel protected and confident."*

Students reported that teacher support was significant because "they feel more relaxed, self-assured, and they can simply learn the skill practices."

3.2.3 Student Interest and Satisfaction

Both schools offered a range of activities. At Shashemene School for the Blind, activities included football (with balls containing bells), athletics, goal ball, and gymnastics. Abush observed: *"Playing football makes and motivates students with visual impairment... as they hear and listen to it... the ball produces the sound as well."*

At Hosanna School for the Deaf, activities included football, basketball, running, throwing-javelin, shot put, and discus. Mamush noted: *"Students with hearing impairment need more space for carrying out their activities... the most usual involvement in activities comes through observing and touch."*

Students reported that athletics, football, and basketball were the most interesting and enjoyable activities. One student noted: *"Our teacher has been organizing a number of activities... the most appropriate sports practices we found more interesting and enjoyable to participate in include athletics, football and basketball."*

3.2.4 Physical Capability and General Wellbeing

Both teachers noted that students often experienced motor delays upon entering school. Abush observed: *"Students who are partaking regular physical activities are capable of traveling all over the place of the residences and buildings of the school ground without restrictions."*

Mamush emphasized the broader benefits: *"Physical activities and sports involvement provides more to supplementary subjects... students who are energetic and healthy be likely to go on sound with their educations contrasting those who are sedentary."*

Students confirmed that participation improved their motor abilities, physical fitness, and overall health. One student expressed: *"Our teacher encourage our desire to partake in physical activities and sports similar with any other students because it empowers us to develop mentally, socially, ethically and physically."*

3.2.5 Challenges Related to Staffing and Training

Both teachers identified the shortage of trained manpower as a significant challenge. Abush noted: *"I am the only physical education teacher for the whole school. I have to teach all classes, organize all sports, and try to help each student. It is not easy. There is no one to share the work with me."* He further explained: *"I have been teaching for 28 years, but I never received training in adapted physical education. I learned through experience, by trying and seeing what works."*

Mamush expressed similar concerns: *"Here in Hosanna, I am the only PE teacher. I have 234 students, and I am responsible for all of them. How can I give individual attention to each student? It is impossible with only one teacher. We need more teachers who know how to work with deaf students in physical activities."*

The shortage of trained manpower was particularly evident during sports competitions. Abush stated: *"When we go to competitions, it is only me with the students. I am the coach, the organizer, the caretaker—everything. I cannot give my best because I am doing too many jobs at once."*

Students also acknowledged the staffing challenges. One student with visual impairment commented: *"Our teacher tries his best, but he is alone. Sometimes he cannot help everyone because there are so many of us and only one of him. We understand, but we wish there were more teachers."*

3.3 Cross-Case Analysis

Both teachers demonstrated strong responsiveness through:

- Adapting instruction to students' specific impairments
- Promoting peer assistance and collaboration
- Encouraging participation in competitive sports
- Emphasizing the link between physical activity and overall wellbeing

Differences were primarily related to communication methods and the specific impairments of students. Abush relied on verbal instruction and physical contact; Mamush used sign language and visual demonstration. Both expressed commitment despite facing systemic challenges in resources and institutional support. However, both teachers struggled with the overwhelming workload and limited training, which they attributed to the acute shortage of trained manpower in adapted physical education.

4 DISCUSSION

4.1 Teacher Responsiveness and Social Development

The findings demonstrate that teachers in both special schools exhibited positive responsiveness, supporting students' social development through physical activities. This aligns with research emphasizing that developing students' independence can be accomplished through participation in physical activities based on teachers' positive attitudes. Students reported improved self-worth, communication, and ability to collaborate—consistent with findings from other contexts where participation in sport contributed to empowerment through social interaction and friendship.

The emphasis on peer assistance reflects the recommendation that teachers must facilitate successful relations between students with special needs, recognizing play and sport as opportunities for learning. However, the finding that teachers sometimes struggled to engage hesitant students highlights the need for sustained encouragement and relationship-building.

4.2 Adaptations and Instructional Strategies

Teachers demonstrated adaptive strategies appropriate to students' impairments. For students with visual impairment, Abush used verbal instruction and physical contact. For students with hearing impairment, Mamush used sign language and visual demonstration. These approaches align with the emphasis that adapting is "good teaching" in adapted physical education [11].

However, the lack of formal specialized training—particularly for Abush, who held only a TTI certificate—is concerning. Lytle, Lavay, and Rizzo [12] emphasized that adapted physical education teachers must have knowledge and skills in disability studies, assessment methods, instructional design, adaptations and modifications, and assistive technology. Neither teacher had comprehensive training in these areas, though Mamush had received some short-term training from foreign trainers.

4.3 Physical Capability and General Wellbeing

The finding that students improved their motor abilities and overall health through participation is consistent with extensive research. Li et al. [2] found that physical activity significantly improves balance ability in children and adolescents with intellectual disabilities (SMD = 1.19). Zarei et al. [19] demonstrated that exercise training programs positively impact static balance ($p = 0.001$), postural sway ($p = 0.001$), and dynamic balance ($p = 0.001$) in children with hearing loss. Sharma et al. [3] found that physical exercise has a positive impact on body mass index, cardiometabolic health, bimanual activities, motor and cognitive functioning, balance, and coordination.

The teachers' emphasis on the link between physical activity and academic performance echoes findings that physical fitness supports cognitive function and academic achievement. School-based physical activity programs for children and adolescents with disability can improve measures of cognition and mental health [16]. However, the lack of systematic assessment of students' physical capabilities limits the ability to track progress and adapt programs accordingly.

4.4 Challenges and Systemic Barriers

The most significant systemic barrier identified in this study was the shortage of trained manpower in adapted physical education. Both schools employed only one physical education teacher, reflecting a broader national challenge in Ethiopian special education. This staffing pattern has profound implications:

First, it limits individualization of instruction. With only one teacher responsible for all students—regardless of grade level, disability type, or functional ability—it is virtually impossible to provide the individualized, specially designed instruction required under inclusive education principles. This finding is consistent with research in other developing countries where teacher shortages constrain the quality of adapted physical education.

Second, the teachers described overwhelming workloads. Abush and Mamush were responsible for all physical education instruction, sports organization, competition preparation, and student assessment. This "multiple hats" phenomenon contributes to teacher burnout and reduced instructional quality. Studies in Turkey have found that special education teachers working with orthopedic and hearing-impaired students experienced significantly higher burnout levels [27]. The absence of support staff, such as adapted physical education assistants or specialized coaches, further compounds this problem.

Third, the lack of formal training in adapted physical education—despite years of experience—represents a critical gap. While both teachers demonstrated adaptive strategies through trial and error, they lacked systematic knowledge of evidence-based practices in adapted physical education. Lytle, Lavay, and Rizzo [12] emphasized that adapted physical education teachers must possess knowledge in disability studies, assessment methods, instructional design, adaptations and modifications, and assistive technology. Neither teacher had comprehensive training in these essential areas.

The shortage of trained manpower is not unique to this study. Research across sub-Saharan Africa has identified inadequate teacher training as a primary barrier to inclusive physical education [21]. In Ethiopia specifically, the Special Needs and Inclusive Education Strategy [22] recognizes the need for specialized teachers, but implementation has lagged significantly. This study provides empirical evidence that the gap between policy and practice is severe, particularly in adapted physical education.

The challenges identified—inadequate equipment and facilities, limited time, financial constraints—are consistent with findings across sub-Saharan Africa. Studies in Ghana found that PE teachers face significant barriers including lack of training, inadequate facilities, resource constraints, and negative attitudes toward disability [20]. In Ethiopia, research has found that students with disabilities face significant barriers in health and physical education practical classes due to the absence of an inclusive curriculum that accommodates learners with visual, hearing, and mobility impairments [21].

The finding that the physical education curriculum governed by the Ministry of Education was not consistently implemented in special schools reflects broader governance challenges. The schools operate under foreign donor governance structures (CNEWA for Shashemene School for the Blind; EECMY-DASSC for Hosanna School for the Deaf), potentially limiting alignment with national education policy.

4.5 Strengths of the Study

Despite the limitations, this study has several strengths. First, it addresses a significant gap in the literature on adapted physical education in Ethiopian special schools. While there is growing scholarship on inclusive education globally, very little research has examined the specific context of physical education for students with sensory impairments in Ethiopia. Second, the case study approach allowed for in-depth, contextualized understanding of teacher responsiveness, providing rich qualitative data that would not be captured through quantitative methods alone. Third, the triangulation of data from multiple sources—teachers, students, and principals—enhances the validity of the findings. Fourth, the study

captures the voices of students with special needs themselves, offering perspectives that are often marginalized in educational research. Fifth, the study provides empirical evidence on the impact of teacher shortage on adapted physical education delivery, a topic that has received limited attention in the literature. Sixth, the researcher's interdisciplinary background in inclusive education, rehabilitation, and exercise physiology provided a comprehensive framework for understanding the educational, social, and physical development needs of students with sensory impairments.

4.6 Limitations

Several limitations should be acknowledged when interpreting the findings of this study.

Geographic and Institutional Limitations: The study was conducted in only two special schools—Shashemene School for the Blind and Hosanna School for the Deaf—located within a practical distance from Dilla University. While these schools were purposefully selected as the only residential special schools for sensory impairments in the region, this geographic and institutional limitation restricts the generalizability of the findings to other special schools in Ethiopia, particularly those in different regions or with different governance structures.

Sample Limitations: The study included only the two physical education teachers employed at these schools. This reflects the acute shortage of trained manpower in adapted physical education in Ethiopian special schools—each school had only one PE teacher—but it also limits the breadth of perspectives captured. Future research with larger samples across multiple regions and school types is recommended.

Methodological Limitations: The study did not examine physical activities and sports outside the school environment. Additionally, the presence of the researcher during observations may have influenced teacher behavior (Hawthorne effect). The study did not include quantitative measures of students' physical fitness or motor development.

Translation and Communication Limitations: Although interviews were conducted in Amharic (the working language of the schools), and a sign language interpreter facilitated communication with deaf students, translation challenges may have affected the accuracy of some responses. Additionally, the study did not include parents or families, whose perspectives might have provided additional insights.

Despite these limitations, the study provides valuable empirical evidence on teacher responsiveness in physical education for students with sensory impairments in Ethiopian special schools, contributing to a previously under-researched area.

4.7 Implications for Policy and Practice

Several implications emerge from this study:

Teacher Training and Staffing: There is an urgent need for specialized training in adapted physical education for teachers in special schools. The acute shortage of trained manpower must be addressed as a national priority. The Ministry of Education should:

- Develop a pre-service and in-service training program in adapted physical education for PE teachers
- Establish adapted physical education as a specialization area within physical education degree programs
- Provide incentives to attract teachers to special schools
- Employ multiple PE teachers in special schools rather than relying on a single teacher for all students

Resource Provision: Schools require adapted equipment (e.g., balls with bells for students with visual impairment, visual aids for students with hearing impairment) and accessible facilities. Donors supporting special schools should prioritize physical education infrastructure.

Curriculum Integration: Physical education should be integrated into the core curriculum of special schools, with clear standards, assessment frameworks, and accountability mechanisms.

Inclusive Policy: Ethiopia's Special Needs and Inclusive Education Strategy should explicitly address physical education, including adapted physical education, as a component of quality education for students with disabilities.

4.8 Recommendations

Based on the findings of this study, several recommendations are offered for policy and practice:

Recommendation 1: Increase the Number of Trained Adapted Physical Education Teachers

The shortage of trained manpower in adapted physical education must be addressed as a national priority. The Ministry of Education, in collaboration with universities and teacher training institutions, should:

- Develop a pre-service and in-service training program in adapted physical education for PE teachers
- Establish adapted physical education as a specialization area within physical education degree programs
- Provide incentives (salary increases, professional development opportunities) to attract teachers to special schools
- Employ multiple PE teachers in special schools rather than relying on a single teacher for all students

Recommendation 2: Provide Professional Development for Current PE Teachers

Current PE teachers who have not received training in adapted physical education need opportunities for professional development. Short-term training, workshops, and mentorship programs should be organized by universities and educational authorities. The teachers in this study expressed a strong desire for such training: Abush stated, "If I had the chance to learn more about teaching students with visual impairment in physical activities, I would be very happy."

Recommendation 3: Provide Adapted Equipment and Facilities

Schools require adapted equipment and accessible facilities. Specifically:

- Balls with bells and sound-emitting devices for students with visual impairment
- Visual aids, flags, and color-coded markers for students with hearing impairment
- Accessible and safe playing fields and facilities
- Regular maintenance and replacement of equipment

Recommendation 4: Integrate Adapted Physical Education into the Core Curriculum

Physical education should be integrated into the core curriculum of special schools, with clear standards, assessment frameworks, and accountability mechanisms. The Ministry of Education should monitor implementation of adapted physical education in special schools.

Recommendation 5: Support Research and Documentation

More research is needed on adapted physical education in Ethiopian special schools. Future studies should:

- Include multiple schools across different regions and disability categories
- Employ quantitative measures of students' physical fitness and motor development
- Examine the impact of adapted physical education on academic performance
- Document effective practices for use in teacher training
- Investigate the relationship between teacher staffing levels and student outcomes in adapted physical education

5 CONCLUSION

This study explored teachers' responsiveness regarding what and how students with special needs learn through involvement in physical activities and sports in Shashemene School for the Blind and Hosanna School for the Deaf. The findings demonstrate that both teachers exhibited positive responsiveness, adapting instruction to students' specific impairments and promoting social development, physical capability, and general wellbeing. Students confirmed that participation improved their self-confidence, peer relationships, motor abilities, and classroom attentiveness.

However, the acute shortage of trained manpower in adapted physical education emerged as a critical systemic barrier. Both schools employed only one physical education teacher, who was responsible for all students, all grades, and all aspects of physical education programming. Teachers reported overwhelming workloads, limited individualization of instruction, and a lack of formal training in adapted physical education. These constraints significantly limited the quality and scope of physical education delivery.

Teacher responsiveness is a critical determinant of successful physical education for students with sensory impairments. While the teachers in this study demonstrated commitment and adaptive strategies, systemic challenges in resources, training, and staffing severely constrain optimal outcomes. The lack of formal specialized training in adapted physical education—combined with the single-teacher staffing model—represents a fundamental barrier to providing quality education for students with disabilities.

Addressing these challenges requires coordinated action from the Ministry of Education, regional education bureaus, school administrators, donors, and teacher training institutions. The shortage of trained manpower in adapted physical education must be addressed as a national priority, with increased staffing, specialized training, and ongoing professional development.

The study underscores the urgent need for adapted physical education specialist training, provision of appropriate equipment, integration of physical education into the core curriculum of special schools, and explicit recognition of physical education in Ethiopia's special needs education policy. Without such investment, students with special needs will continue to be denied the holistic benefits—physical, social, cognitive, and emotional—that physical activities and sports provide.

Declarations

Ethical Approval: This study was approved by the Institutional Review Board of Dilla University. All participants provided written informed consent. The principals of both participating schools granted explicit, written permission for the schools' names to be disclosed in this publication. To protect the confidentiality and anonymity of individual participants, all names of teachers, students, and administrators have been replaced with pseudonyms throughout this manuscript.

Consent to Participate: Informed consent was obtained from all individual participants included in the study. For minor participants (students under 18), parental/guardian consent was also obtained.

Consent for Publication: Participants were informed that the findings of this study would be published in a peer-reviewed journal and that their identities would be protected through the use of pseudonyms.

Data Availability: The datasets generated and analyzed during the current study are not publicly available due to ethical restrictions protecting participant confidentiality but are available from the corresponding author on reasonable request.

Competing Interests: The authors declare no competing interests.

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Author Contributions: Muluken Gebeyehu conceived the study, designed the methodology, collected and analyzed the data, and drafted the manuscript. Facil Admasu contributed to the data collection process, provided critical support in analyzing the practical implementation of physical activities within the school settings, and provided critical revisions to the manuscript. All authors read and approved the final manuscript.

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