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Developing and Validating a Psychosocial Indicators Scale for Monitoring and Evaluation of Students with Visual Impairment in Inclusive Secondary Schools in Delta State, Nigeria

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Abstract

This study developed and validated the Psychosocial Indicators Monitoring and Evaluation Scale (PIMES) to assess the psychosocial well-being of students with visual impairment in inclusive secondary schools in Delta State, Nigeria. The study adopted an instrumentation research design. An initial pool of items was generated through an extensive literature review and consultations with experts in Special Education, Educational Psychology, Counselling Psychology, and Measurement and Evaluation. Face and content validation were conducted with a panel of 12 experts, and psychometric evaluation was carried out using data from 300 students with visual impairment selected from inclusive secondary schools across the three senatorial districts of Delta State. Content validity was assessed using the Content Validity Index (CVI), construct validity was established through Exploratory Factor Analysis (EFA), and reliability was assessed using Cronbach's alpha. Findings revealed a five-factor structure comprising Emotional Well-being, Social Inclusion, Self-esteem and Self-confidence, Support Systems and Accessibility, and School Participation and Engagement. The Scale Content Validity Index (S-CVI/Ave) was 0.92, indicating strong content validity. Exploratory factor analysis confirmed the five-factor structure, accounting for 64.38% of the total variance. Reliability coefficients for the subscales ranged from 0.85 to 0.89, while the overall scale yielded a Cronbach's alpha of 0.91, demonstrating excellent internal consistency. The study concluded that PIMES is a valid and reliable instrument for monitoring psychosocial outcomes among students with visual impairment in inclusive secondary schools. It was recommended that the instrument be integrated into educational monitoring and evaluation frameworks to support evidence-based decision-making and enhance inclusive education practices.

Keywords: Evaluation, Inclusive Education, Scale Development, Monitoring, Visual Impairment

Introduction

The global push for inclusive education has reshaped perspectives on the education of learners with disabilities. This shift has been reinforced by the United Nations Sustainable Development Goal 4, which advocates inclusive and equitable quality education for all by 2030 (United Nations, 2015). Inclusive education seeks to provide equal learning opportunities for all students within mainstream schools and requires effective monitoring systems that assess both academic and non-academic outcomes (Ainscow, 2020). Although progress has been made in school enrolment and access, the psychosocial aspects of inclusion remain inadequately monitored, particularly in developing countries (Mohammad, Gimba, & Shehu, 2025). In Nigeria, policies such as the National Policy on Education (Federal Republic of Nigeria, 2013) and the Discrimination Against Persons with Disabilities (Prohibition) Act of 2018 support the inclusion of learners with disabilities in regular schools. Despite these policy efforts, implementation challenges persist. Students with visual impairment, defined as individuals whose visual functioning is significantly limited (World Health Organisation, 2021), often face barriers related to curriculum access, social participation, and emotional adjustment in inclusive schools (Adewuyi & Odekunle, 2022). Psychosocial development is an important component of the educational experience of students with visual impairment. It includes emotional well-being, self-concept, social relationships, behavioural adjustment, and

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access to support systems. Successful inclusion depends not only on academic achievement but also on the ability of learners to participate meaningfully in school life. Psychosocial indicators are measurable factors that reflect the psychological and social aspects of an individual's well-being and functioning. In educational settings, they encompass emotional, social, and behavioural dimensions of development that complement academic outcomes and are particularly important for understanding the experiences of adolescents with visual impairments (Chiracu & Buică-Belciu, 2023). Monitoring and evaluation involve the systematic collection and use of information to improve educational programmes and outcomes (Okeke & Nnamani, 2021). Effective monitoring in inclusive education should therefore assess dimensions such as social participation, emotional adjustment, accessibility, and engagement (Ajuwon, Chitiyo, Onuigbo, Ahon, Olayi & Olayi, 2020). However, most monitoring systems in Nigerian schools focus mainly on academic indicators, with limited attention to psychosocial outcomes. International frameworks also emphasise the importance of assessing psychosocial dimensions. UNESCO (2020) recommends monitoring learner participation and achievement beyond academic measures, while the WHO International Classification of Functioning framework highlights the interaction between disability and environmental factors (WHO, 2021). Despite these recommendations, validated instruments for assessing psychosocial indicators among students with visual impairment in Nigerian inclusive secondary schools remain scarce. Delta State has demonstrated commitment to inclusive education through initiatives such as the Ministry of Education's Special Education Unit (Delta State Government, 2022). Nevertheless, schools largely depend on informal observations rather than standardised assessment tools. There is therefore a need for culturally relevant instruments that can support early identification of psychosocial challenges, informed intervention, and evidence-based decision-making (Ogbo, Oyewole & Ifeagwazi, 2022; Nwosu & Nkemjika, 2021). Consequently, this study sought to develop and validate the Psychosocial Indicators Monitoring and Evaluation Scale (PIMES) for students with visual impairment in inclusive secondary schools in Delta State, Nigeria.

Statement of the Problem

The monitoring and evaluation of students with disabilities in inclusive educational settings has historically privileged academic outcomes over psychosocial development. In Nigerian secondary schools, this overemphasis on academic indicators has created a significant gap in understanding how students with visual impairment experience inclusive education beyond their academic performance. School administrators, teachers, and counsellors lack valid and reliable instruments for systematically assessing the psychosocial dimensions of inclusion, including emotional well-being, social integration, self-esteem, accessibility of support systems, and meaningful participation in school life. This gap has profound implications. Without standardised assessment tools, educators cannot identify students experiencing psychosocial difficulties, evaluate the effectiveness of inclusive education programmes, or make evidence-based decisions about resource allocation and intervention strategies. Existing instruments developed in Western contexts may not adequately capture the cultural and contextual realities of students with visual impairment in Nigerian inclusive schools. The absence of a validated psychosocial monitoring instrument thus represents a critical barrier to implementing truly inclusive education that addresses the whole child. This study was designed to address this gap by developing and validating a psychosocial indicators scale specifically tailored to the Nigerian inclusive secondary school context.

Purpose of the Study

The overall purpose of this study was to develop and validate the Psychosocial Indicators Monitoring and Evaluation Scale (PIMES) for assessing the psychosocial well-being of students with visual impairment in inclusive secondary schools in Delta State, Nigeria. The specific objectives were to:

1. identify relevant psychosocial indicators for monitoring students with visual impairment in inclusive secondary schools through a systematic literature review and expert consultations;
2. develop a pool of scale items grounded in the identified psychosocial indicators and subject them to face and content validation by expert panels;
3. determine the factor structure of the scale through exploratory factor analysis;
4. establish the reliability of the scale and its subscales using Cronbach's alpha coefficients; and
5. produce a psychometrically sound instrument for use by educators, administrators, counsellors, and researchers in inclusive education settings.

Research Questions

The following research questions guided the study:

1. What psychosocial indicators are relevant for monitoring and evaluating students with visual impairment in inclusive secondary schools?
2. What is the content validity of the Psychosocial Indicators Monitoring and Evaluation Scale as determined by expert ratings?
3. What is the factor structure of the Psychosocial Indicators Monitoring and Evaluation Scale?
4. What are the reliability coefficients of the Psychosocial Indicators Monitoring and Evaluation Scale and its subscales?

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Literature Review

Conceptual Review

Students with Visual Impairment

Visual impairment refers to conditions ranging from partial sight to total blindness that affect an individual's ability to perform activities requiring vision (World Health Organization, 2021). Educationally, the major concern is not the severity of the condition itself but its effect on a student's ability to access and benefit from learning opportunities (Adewuyi & Odekunle, 2022). Students with visual impairment differ in terms of the onset of vision loss, progression of the condition, presence of additional disabilities, and development of compensatory skills (Mohammad et al., 2025). In inclusive schools, these characteristics interact with factors such as teacher competence, peer attitudes, resource availability, and school accessibility to influence students' educational experiences. Students with visual impairment face several challenges in inclusive settings. According to Douglas et al. (2021), the major areas are curriculum access, social inclusion, and independent mobility. Curriculum access involves adapting learning materials and providing assistive technologies and alternative literacy methods such as braille and audio learning. Social inclusion focuses on peer relationships, participation in school activities, and a sense of belonging, while independent mobility relates to safe movement within the school environment. These challenges are often more severe in schools with limited resources, inadequate assistive technologies, and a shortage of trained personnel.

Psychosocial Indicators

Psychosocial indicators are measurable factors that reflect the psychological and social aspects of an individual's well-being and functioning. In education, they assess emotional, social, and behavioural dimensions of student development that complement academic outcomes (Chiracu and Buică-Belciu, 2023). These dimensions are also relevant to understanding students' motivation, psychological needs, and engagement in educational settings (Ryan & Deci, 2020). The concept recognises that psychological experiences and social interactions are closely interconnected and influenced by the environments in which students live and learn. For students with disabilities in inclusive schools, psychosocial indicators are particularly important because disability affects not only physical functioning but also identity, relationships, and opportunities (Oliver & Barnes, 2021). Key psychosocial indicators include emotional well-being, social inclusion, self-esteem and self-confidence, support systems and accessibility, school participation, and engagement. These indicators assess students' emotional adjustment, peer acceptance, sense of belonging, access to support resources, and involvement in school activities. The importance of psychosocial indicators in educational assessment has received increasing attention. Ajuwon et al. (2020) maintained that for students with disabilities, psychosocial outcomes are as important as academic achievement in determining educational success and future life outcomes. This highlights the need to monitor psychosocial indicators alongside academic performance in inclusive education settings.

Monitoring and Evaluation in Education

Educational monitoring and evaluation involve the systematic collection, analysis, and use of information to assess the progress, performance, and outcomes of educational programmes, institutions, and learners (Okeke & Nnamani, 2021). Monitoring focuses on the continuous tracking of indicators to identify trends and areas requiring attention, while evaluation assesses the effectiveness of programmes against established objectives. Together, they provide evidence for accountability, improvement, and policy development. Effective educational monitoring is guided by principles such as relevance, validity, reliability, feasibility, and utility. These principles ensure that assessment tools measure meaningful constructs accurately and consistently, are practical to implement, and generate information useful for decision-making. Such principles are equally important in assessing psychosocial outcomes in inclusive education settings. Within inclusive education, monitoring systems should address diverse learner needs and the multidimensional nature of inclusion. According to UNESCO (2020), inclusive education monitoring focuses on three key dimensions: presence, participation, and achievement. Presence relates to school attendance, participation concerns active engagement in school life, and achievement includes both academic and broader developmental outcomes. This framework recognises that true inclusion extends beyond physical access to mainstream classrooms and requires positive cognitive, social, emotional, and behavioural outcomes. For students with visual impairment, evaluating participation and achievement therefore requires the assessment of relevant psychosocial indicators that reflect their experiences in inclusive settings.

Inclusive Education

Inclusive education is an educational philosophy and practice that promotes equity, values diversity, and ensures that all learners, regardless of ability or background, receive quality education within mainstream schools (Ainscow, 2020). Its development has moved beyond simple integration to creating educational systems that respond to diverse learner needs. The Salamanca Statement and Framework for Action on Special Needs Education established the principle that learners with disabilities should attend their neighbourhood schools, a position later reinforced by international frameworks (UNESCO, 1994). The key principles of inclusive education include equal valuing of all learners, increased participation in learning and school activities, reduction of

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exclusion, and adaptation of school structures to accommodate diversity (Mohammad et al., 2025). Rather than viewing learning difficulties as individual deficits, inclusive education recognises that barriers often arise from the environment, curriculum, and teaching practices. In Nigeria, implementation reflects both policy commitment and practical challenges. Many inclusive schools lack specialised personnel, assistive technologies, and adapted curricula needed to effectively support students with visual impairment (Adewuyi & Odekunle, 2022). These challenges highlight the need for context-sensitive monitoring tools aligned with international standards

Proposed Dimensions of the Scale

Five dimensions were proposed for the Psychosocial Indicators Monitoring and Evaluation Scale based on literature and theoretical relevance to students with visual impairment in inclusive schools. The first dimension, emotional well-being, refers to positive emotional states and the absence of distress, including anxiety, depression, and emotional regulation (Chiracu and Buică-Belciu, 2023). For students with visual impairment, it is shaped by environmental barriers, stigma, and support systems, with studies reporting higher anxiety and depression when support is limited (Douglas et al., 2021). Monitoring this helps identify students needing emotional support. The second dimension, social inclusion, reflects acceptance, relationships, and sense of belonging (Oliver & Barnes, 2021). It depends on peer attitudes, teacher support, and interaction opportunities. Many students with disabilities experience isolation in inclusive settings, making assessment important for improving integration (Ajuwon et al., 2020). The third dimension, self-esteem and self-confidence, concerns self-worth and belief in personal ability. These are influenced by social comparison, feedback, and school experiences. Poor inclusion practices may lower self-esteem, so monitoring helps guide interventions that build confidence. The fourth dimension, support systems and accessibility, covers the availability of institutional, interpersonal, and technological support such as assistive devices, teacher assistance, counselling, and accessible learning materials (Nwosu et al. 2021). Adequate support remains central to successful inclusion (Mohammad et al., 2025). The fifth dimension, school participation and engagement, refers to involvement in academic and extracurricular activities and the level of emotional and behavioural investment in school life (Okeke & Nnamani, 2021). Higher engagement is linked to better academic and social outcomes and improved life satisfaction (Chiracu and Buică-Belciu, 2023).

Theoretical Framework

This study was anchored on the social model of disability. It provides a robust conceptual foundation for understanding and assessing the psychosocial indicators of students with visual impairment in inclusive settings. The Social Model of Disability provided the primary theoretical lens for conceptualising disability and its implications for psychosocial assessment. Developed by disability rights scholars including Oliver and Barnes (2021), the social model distinguishes between impairment, which refers to the functional limitation of a body part or system, and disability, which refers to the social disadvantages and restrictions imposed on people with impairments by an environment that fails to accommodate their needs. This model shifts the focus from individual deficit to social and environmental barriers, fundamentally reframing how the experiences of students with visual impairment are understood. From this perspective, the psychosocial difficulties experienced by students with visual impairment in inclusive schools are not inevitable consequences of their visual condition but are produced or exacerbated by social, attitudinal, and environmental barriers within the educational system. The social model thus justifies the inclusion of dimensions such as social inclusion, support systems, and accessibility in the monitoring instrument, as these capture the contextual factors that create or mitigate disability experiences.

Empirical Review

A review of recent empirical studies provides important context for understanding the current state of knowledge regarding the psychosocial experiences of students with visual impairment in inclusive settings and the methodological approaches to assessing these experiences. Douglas, McLinden, and McCall (2021) conducted a systematic review of research on the educational experiences of children and young people with visual impairment in the United Kingdom. Drawing from 47 studies published between 2010 and 2020, the authors found that while academic outcomes were generally comparable between students with visual impairment and their sighted peers when appropriate support was provided, psychosocial outcomes showed greater variability. Social inclusion emerged as the most frequently reported challenge, with students describing experiences of isolation, difficulty forming friendships, and limited participation in extracurricular activities. The review highlighted the absence of standardised psychosocial assessment tools within the UK educational system and called for the development of valid instruments to support monitoring and intervention. Ajuwon et al. (2020) investigated the psychosocial adjustment of students with visual impairment in inclusive secondary schools in southwestern Nigeria. Using a mixed-methods design with 156 students, the researchers found that participants reported moderate levels of social adjustment but relatively lower levels of emotional well-being and self-concept. Significant predictors of psychosocial adjustment included family support, teacher attitudes, and peer relationships. The study employed adapted versions of Western-developed scales, raising questions about cultural appropriateness. The authors recommended the development of indigenous assessment instruments grounded in the Nigerian context. Majoko (2021) examined inclusive education practices for learners with visual impairment in Zimbabwean primary

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schools. Through qualitative interviews with 24 teachers and 18 students, the study identified curriculum adaptation, social acceptance, and resource availability as the three most critical factors influencing inclusion outcomes. Students who reported positive relationships with teachers and peers demonstrated greater school engagement and emotional well-being. The study underscored the need for systematic monitoring systems that capture both process and outcome indicators of inclusion quality. Adewuyi and Odekunle (2022) explored the challenges faced by students with visual impairment in Nigerian universities. Through focus group discussions with 32 students, the researchers identified transportation difficulties, inaccessible learning materials, negative peer attitudes, and limited access to assistive technology as major barriers. Students described profound emotional and psychological impacts resulting from these barriers, including feelings of frustration, anxiety, and diminished self-worth. The study highlighted the absence of institutional mechanisms for routinely assessing the psychosocial well-being of students with visual impairment. Okeke and Nnamani (2021) examined monitoring and evaluation practices in Nigerian inclusive education programmes. Through a mixed-methods study involving 180 school administrators, the researchers found that monitoring activities were largely confined to academic indicators, with minimal attention to social and emotional outcomes. Most administrators reported that they lacked the instruments and training needed to assess psychosocial indicators. The study recommended capacity building and the development of appropriate assessment tools as priorities for strengthening inclusive education monitoring systems. Ogbo, Okeke, and Anyaegbunam (2022) examined the cultural validity of imported psychological assessment instruments when used with Nigerian populations. Through a critical analysis of 35 studies, the authors identified significant concerns regarding linguistic equivalence, conceptual relevance, and normative appropriateness. The study concluded that the practice of adapting Western-developed instruments without adequate attention to cultural context threatens the validity of assessment results and may lead to inappropriate educational decisions. The authors advocated for the indigenous development of assessment instruments grounded in Nigerian cultural realities.

Gaps in the Literature

The empirical review reveals several significant gaps that this study was designed to address. First, despite the recognition of psychosocial factors as critical determinants of inclusive education success, there remains a paucity of validated instruments specifically designed to assess these factors among students with visual impairment in Nigerian inclusive schools. Second, existing studies have relied predominantly on Western-developed instruments whose cultural validity for Nigerian populations is questionable. Third, the few locally developed instruments that exist focus on related but distinct constructs such as guidance needs or school climate rather than providing a comprehensive assessment of psychosocial indicators. Fourth, previous research has not produced instruments that are simultaneously grounded in the Nigerian context, aligned with international inclusive education monitoring frameworks, and validated using rigorous psychometric methods. This study directly addresses these gaps by developing and validating a psychosocial indicators scale that is contextually appropriate, theoretically grounded, and psychometrically sound.

Methodology

This study employed an instrumentation research design, specifically focused on instrument development and validation. Instrumentation research design is appropriate when the primary purpose is to develop, refine, and establish the psychometric properties of a measurement tool (Fraenkel, Wallen, & Hyun, 2023). The target population for this study comprised stakeholders involved in the education of students with visual impairment in inclusive secondary schools in Delta State, Nigeria. Delta State is one of the six states in the South-South geopolitical zone of Nigeria, with an estimated population of 5.6 million people and 452 public and private secondary schools. The study involved two categories of participants: experts who participated in the validation process and students who participated in the administration of the instrument for psychometric evaluation. For the validation stage, a panel of 12 experts comprising specialists in Special Education, Educational Psychology, Counselling Psychology, and Measurement and Evaluation was purposively selected. These experts assessed the relevance, clarity, and representativeness of the scale items and provided the basis for establishing the face and content validity of the instrument. The target population for the field testing stage of the study comprised 2,988 students with visual impairment enrolled in inclusive secondary schools across the three senatorial districts of Delta State, Nigeria. The population consisted of both partially sighted and totally blind students, including male and female learners within the age range of 12 to 20 years. A sample of 300 students with visual impairment was selected from the population of 2,988 students for the field testing and psychometric evaluation of the Psychosocial Indicators Monitoring and Evaluation Scale (PIMES). The sampled students were drawn from inclusive secondary schools across Delta North, Delta Central, and Delta South Senatorial Districts of Delta State.

A multistage sampling technique was adopted for the selection of the respondents. At the first stage, purposive sampling was used to select inclusive secondary schools officially designated as inclusive education centres by the Delta State Ministry of Basic and Secondary Education. At the second stage, proportionate stratified random sampling was employed to select the 300 students from the identified schools. The stratification ensured adequate

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representation of the students based on gender, level of visual impairment, namely partial sight and total blindness, and school location, namely urban and rural areas. The 300 selected students constituted the respondents whose data were used for the exploratory factor analysis, reliability analysis, and other psychometric evaluations of the Psychosocial Indicators Monitoring and Evaluation Scale (PIMES). The Psychosocial Indicators Monitoring and Evaluation Scale (PIMES) is a 40-item self-report instrument designed to assess the psychosocial well-being of students with visual impairment in inclusive secondary school settings. The scale comprises five subscales, each containing 8 items, corresponding to the five dimensions of psychosocial functioning: emotional well-being, social inclusion, self-esteem and self-confidence, support systems and accessibility, and school participation and engagement. Respondents indicate their level of agreement with each statement on a 4-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Higher scores indicate more positive psychosocial functioning on each dimension.

The complete PIMES instrument is presented below:

Instructions: Please indicate how much you agree or disagree with each of the following statements. Circle the number that best represents your opinion: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree.

Dimension A: Emotional Well-being

1. I generally feel happy and content with my life at school.
2. I often feel anxious or worried about things related to my schooling.
3. I can manage my emotions effectively when facing challenges at school.
4. I frequently feel sad or depressed about my situation as a student with visual impairment.
5. I feel optimistic about my future educational prospects.
6. I experience stress that interferes with my ability to learn at school.
7. I feel emotionally supported when I encounter difficulties in my studies.
8. I can cope with negative comments or attitudes from others about my visual impairment.

Dimension B: Social Inclusion

9. I feel accepted and valued by my classmates in this school.
10. I have friends in this school with whom I can share my thoughts and feelings.
11. My classmates treat me with respect and dignity.
12. I am often excluded from group activities because of my visual impairment.
13. I feel like I truly belong to this school community.
14. Other students are willing to help me when I need assistance at school.
15. I participate in social activities and events organised by the school.
16. I feel lonely or isolated during school hours.

Dimension C: Self-esteem and Self-confidence

17. I feel good about myself as a person and as a student.
18. I believe I can succeed academically despite my visual impairment.
19. I feel proud of my abilities and achievements at school.
20. I often compare myself unfavourably with my sighted classmates.
21. I am confident in my ability to handle school tasks independently.
22. I believe my visual impairment does not define my potential as a student.
23. I feel comfortable speaking up for my needs in the classroom.
24. I have a positive view of what I can accomplish in my future career.

Dimension D: Support Systems and Accessibility

25. My teachers provide me with the assistance I need to learn effectively.
26. The school provides adequate assistive devices and materials for my learning.
27. I can access the school facilities and move around the school safely.
28. The school counsellor is available to help me with personal or emotional concerns.
29. My family is supportive of my education in this inclusive school.
30. The school administration demonstrates commitment to meeting the needs of students with visual impairment.
31. I receive learning materials in accessible formats such as braille or audio.
32. I have access to specialised support services such as orientation and mobility training.

Dimension E: School Participation and Engagement

33. I actively participate in classroom discussions and activities.
34. I attend school regularly and punctually.
35. I am engaged and interested in my schoolwork.
36. I participate in extracurricular activities offered by the school.
37. I take on leadership roles or responsibilities in school activities.

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38. I feel motivated to put effort into my academic work.
39. I contribute meaningfully to group projects and collaborative learning activities.
40. I feel that my participation in school activities is meaningful and valued.

Validation Procedures

Three types of validity evidence were sought in this study: face validity, content validity, and construct validity. Face validity was established through expert evaluation of the scale's format, clarity, readability, and appropriateness for the target population. Content validity was assessed using the Content Validity Index (CVI), a quantitative measure of expert consensus regarding the relevance of each item to the construct being measured. The CVI panel comprised 12 experts with specialisations in special education, educational psychology, counselling psychology, and psychometrics. Each expert rated each item on a 4-point relevance scale, and the item-level CVI (I-CVI) was computed as the proportion of experts rating the item as 3 or 4. The scale-level CVI was computed using both the average method (S-CVI/Ave) and the universal agreement method (S-CVI/UA) (DeVellis, 2021). Construct validity was examined through exploratory factor analysis to determine whether the empirical factor structure corresponded to the theoretically proposed five-dimension structure.

Reliability

Reliability was established using Cronbach's alpha coefficient, which measures internal consistency by examining the degree to which the items within each subscale correlate with one another and with the total scale score. Cronbach's alpha values of 0.70 or above are generally considered acceptable for research instruments, while values of 0.80 or above are considered good (Fraenkel et al., 2023). Reliability coefficients were computed for each subscale separately and for the total scale. The reliability analysis yielded Cronbach's alpha coefficients of 0.89 for the Emotional Well-being subscale, 0.87 for the Social Inclusion subscale, 0.85 for the Self-esteem and Self-confidence subscale, 0.88 for the Support Systems and Accessibility subscale, and 0.86 for the School Participation and Engagement subscale. The overall PIMES yielded a Cronbach's alpha coefficient of 0.91.

Data Analysis

Data were analysed using both descriptive and inferential statistical techniques. Descriptive statistics, including mean and standard deviation, were computed for all scale items and subscales. Content validity was analysed by computing the I-CVI and S-CVI values. Construct validity was examined through exploratory factor analysis using principal axis factoring with promax rotation, an appropriate method when factors are expected to be correlated. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were used to assess the suitability of the data for factor analysis. The number of factors was determined using Kaiser's criterion (eigenvalues greater than 1.0) and inspection of the scree plot. Items with factor loadings below 0.40 or with substantial cross-loadings (loading above 0.35 on more than one factor) were considered for elimination. Reliability was assessed by computing Cronbach's alpha coefficients for each factor-derived subscale and the overall scale. All analyses were conducted using SPSS version 26.0.

Results

The results are presented in accordance with the four research questions that guided the study.

Research Question One: What psychosocial indicators are relevant for monitoring and evaluating students with visual impairment in inclusive secondary schools?

Through the systematic literature review and expert consultations conducted during the instrument development process, 40 psychosocial indicators were identified as relevant for monitoring students with visual impairment in inclusive secondary schools. Table 1 presents the distribution of items across the five dimensions of PIMES.

Table 1:
Distribution of Items Across the Five Dimensions of PIMES

S/N	Dimension	No. of Items
1	Emotional Well-being	8
2	Social Inclusion	8
3	Self-esteem and Self-confidence	8
4	Support Systems and Accessibility	8
5	School Participation and Engagement	8
	Total	**40**

The expert panel confirmed that the identified indicators comprehensively cover the major psychosocial dimensions relevant to the inclusive education experience of students with visual impairment. The indicators were deemed appropriate for the Nigerian educational context while maintaining alignment with international inclusive education monitoring frameworks.

Research Question Two: What is the content validity of the Psychosocial Indicators Monitoring and

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Evaluation Scale as determined by expert ratings?

Content validity was assessed through expert ratings of item relevance. The results indicated satisfactory content validity at both the item level and the scale level. Table 2 presents the content validity indices for each dimension of PIMES.

Table 2:

Content Validity Indices for PIMES Dimensions

S/N	Dimension	I-CVI Range	I-CVI Average
1	Emotional Well-being	0.83-1.00	0.94
2	Social Inclusion	0.75-1.00	0.90
3	Self-esteem and Self-confidence	0.83-1.00	0.93
4	Support Systems and Accessibility	0.83-1.00	0.95
5	School Participation and Engagement	0.75-0.92	0.88
	Overall Scale		**0.92**

The Scale-CVI/Average (S-CVI/Ave) of 0.92 and the Scale-CVI/Universal Agreement (S-CVI/UA) of 0.88 both exceeded the recommended minimum thresholds of 0.90 and 0.80, respectively, indicating strong content validity (DeVellis, 2021). All individual items achieved I-CVI values of 0.75 or above, with the majority of items rated as highly relevant by at least 11 of the 12 expert panel members. The emotional well-being and support systems dimensions received the highest content validity ratings, while the school participation dimension showed the lowest, although still satisfactory, content validity rating.

Research Question Three: What is the factor structure of the Psychosocial Indicators Monitoring and Evaluation Scale?

We conducted exploratory factor analysis to examine the underlying factor structure of PIMES. Before factor analysis, we assessed the suitability of the data. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.87, exceeding the recommended minimum of 0.60, and Bartlett's test of sphericity was statistically significant (chi-square = 4863.42, $p < .001$), indicating that the data were appropriate for factor analysis. Principal axis factoring with promax rotation was employed, and the scree plot and eigenvalues supported the retention of five factors. Table 3 presents the factor loadings for the 40 items of PIMES.

Table 3:

Factor Loadings for PIMES Items Using Principal Axis Factoring with Promax Rotation

Dim	Item Summary	F1	F2	F3	F4	F5
A	Emotional Well-being items (8 items)	0.58-.76				
B	Social Inclusion items (8 items)		0.62-.81			
C	Self-esteem items (8 items)			0.59-.74		
D	Support Systems items (8 items)				0.61-.79	
E	Participation items (8 items)					0.55-.72

The five-factor solution accounted for 64.38% of the total variance. Factor 1, emotional well-being, comprised 8 items with loadings ranging from 0.58 to 0.76 and explained 18.42% of the variance. Factor 2, social inclusion, comprised 8 items with loadings ranging from 0.62 to 0.81 and explained 14.15% of the variance. Factor 3, self-esteem and self-confidence, comprised 8 items with loadings ranging from 0.59 to 0.74 and explained 12.68% of the variance. Factor 4, support systems and accessibility, comprised 8 items with loadings ranging from 0.61 to 0.79 and explained 10.53% of the variance. Factor 5, school participation and engagement, comprised 8 items with loadings ranging from 0.55 to 0.72 and explained 8.60% of the variance. All items loaded above 0.40 on their primary factor, and no substantial cross-loadings above 0.35 were observed. The pattern of loadings confirmed the hypothesised five-factor structure of PIMES.

Research Question Four: What are the reliability coefficients of the Psychosocial Indicators Monitoring and Evaluation Scale and its subscales?

Reliability was assessed using Cronbach's alpha coefficient. Table 4 presents the reliability coefficients for the five subscales and the overall scale.

Table 4:

Reliability Coefficients for PIMES Subscales and Total Scale

S/N	Subscale	Cronbach's Alpha	No. of Items
1	Emotional Well-being	0.89	8
2	Social Inclusion	0.87	8
3	Self-esteem and Self-confidence	0.85	8

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S/N	Subscale	Cronbach's Alpha	No. of Items
4	Support Systems and Accessibility	0.88	8
5	School Participation and Engagement	0.86	8
	Overall Scale	**0.91**	**40**

The results indicated strong internal consistency for all subscales and the overall scale. Cronbach's alpha coefficients ranged from 0.85 for self-esteem and self-confidence to 0.89 for emotional well-being. The overall scale reliability was 0.91, indicating excellent internal consistency. All coefficients exceeded the minimum threshold of 0.70 recommended for research instruments and met the more stringent criterion of 0.80 for good reliability. These results provide strong evidence that PIMES produces consistent measurements across its constituent items.

Table 5 presents the descriptive statistics for the five subscales and the overall scale.

Table 5

Descriptive Statistics for PIMES Subscales and Total Scale

S/N	Subscale	Mean	SD	N
1	Emotional Well-being	2.91	0.67	300
2	Social Inclusion	2.84	0.69	300
3	Self-esteem and Self-confidence	3.08	0.61	300
4	Support Systems and Accessibility	2.95	0.64	300
5	School Participation and Engagement	3.12	0.58	300
	Overall Scale	**2.98**	**0.52**	**300**

The mean scores indicated that respondents reported relatively positive psychosocial functioning across all dimensions. School participation and engagement recorded the highest mean score (M = 3.12, SD = 0.58), followed by self-esteem and self-confidence (M = 3.08, SD = 0.61), support systems and accessibility (M = 2.95, SD = 0.64), emotional well-being (M = 2.91, SD = 0.67), and social inclusion (M = 2.84, SD = 0.69). The total scale mean was 2.98 (SD = 0.52), indicating an overall positive level of psychosocial functioning among the participants.

Discussion

This study developed and validated the Psychosocial Indicators Monitoring and Evaluation Scale (PIMES), a 40-item instrument designed to assess the psychosocial well-being of students with visual impairment in inclusive secondary schools. The findings provide strong evidence for the content validity, construct validity, and reliability of PIMES, supporting its use as a psychometrically sound instrument for monitoring and evaluation purposes. The discussion that follows interprets the findings in relation to theoretical expectations, previous empirical research, and practical implications for inclusive education.

Content Validity

The content validity findings demonstrated that PIMES possesses strong expert-rated relevance for assessing the psychosocial indicators of students with visual impairment. The S-CVI/Ave of 0.92 and S-CVI/UA of 0.88 exceeded established thresholds, indicating that the scale items adequately represent the construct domain they are intended to measure. This finding is consistent with best practices in instrument development, which emphasise the critical importance of expert judgment in establishing content validity during the early stages of scale construction (DeVellis, 2021). The satisfactory content validity also reflects the rigorous item generation process that drew from an extensive literature review and iterative expert consultation.

The relatively higher content validity ratings for emotional well-being and support systems dimensions may reflect the greater scholarly and practical attention these domains have received in the literature on visual impairment and inclusive education. Research has consistently highlighted emotional adjustment and support availability as critical factors influencing the success of students with visual impairment in mainstream settings (Douglas et al., 2021; Mohammad et al 2025). The slightly lower, though still satisfactory, content validity for school participation may indicate that this dimension is conceptually more complex and less uniformly defined in the literature, suggesting a need for further conceptual refinement in future research.

Factor Structure

The exploratory factor analysis supported the hypothesised five-factor structure of PIMES, with all 40 items loading appropriately on their designated factors and no substantial cross-loadings. These findings provide preliminary evidence of construct validity and suggest that the proposed dimensions adequately represent the psychosocial experiences of students with visual impairment in inclusive secondary schools. However, because the factor structure was derived from EFA alone, further validation through Confirmatory Factor Analysis (CFA) using an independent sample is required to establish the stability and replicability of the model. The five-factor solution accounted for 64.38% of the total variance, which is within the acceptable range for multidimensional social science instruments (Fraenkel et al., 2023). The confirmation of the five-factor structure aligns with the

theoretical foundations of the study. The Social Model of Disability suggests that the experiences of students with visual impairment are shaped by multiple interacting factors, including emotional responses, social relationships, self-perception, environmental supports, and participation opportunities (Oliver & Barnes, 2021). The five factors identified in PIMES correspond directly to these dimensions. The alignment between the empirical factor structure and the theoretical framework strengthens the construct validity of the instrument. The finding that social inclusion emerged as the second strongest factor, accounting for 14.15% of the variance, is consistent with previous research that has identified social relationships as a primary concern for students with visual impairment in inclusive settings. Douglas and colleagues (2021) found that social inclusion was the most frequently reported challenge in their systematic review, while Ajuwon et al. (2020) reported moderate levels of social adjustment among Nigerian students with visual impairment. The prominence of this factor in PIMES reflects the centrality of social experiences in determining the quality of inclusive education.

Reliability

The reliability coefficients demonstrated strong internal consistency for all subscales and the overall scale. The Cronbach's alpha values ranging from 0.85 to 0.91 exceed the thresholds for good reliability and indicate that PIMES produces consistent measurements. The highest reliability was observed for the emotional well-being subscale (alpha = 0.89), which may reflect the greater homogeneity of emotional experience items. The overall scale reliability of 0.91 is particularly noteworthy, as it demonstrates that the instrument functions cohesively despite its multidimensional structure.

These reliability findings compare favourably with those reported for similar instruments.

Implications for Practice

The findings of this study carry significant implications for school administrators, teachers, counsellors, policymakers, and monitoring and evaluation practitioners. For school administrators, PIMES provides a standardised tool for assessing the psychosocial well-being of students with visual impairment, enabling data-driven decision-making regarding resource allocation, programme planning, and service improvement. The instrument can be administered periodically to track changes in student psychosocial functioning over time and to evaluate the impact of interventions. For teachers, PIMES offers valuable insights into the emotional, social, and participatory experiences of students with visual impairment in their classrooms. The results can inform instructional practices, classroom management strategies, and individualised support plans. Teachers can use the scale results to identify students who may benefit from additional attention or referral to specialised services.

For counsellors, PIMES serves as a screening instrument for identifying students experiencing psychosocial difficulties that may warrant individual or group counselling intervention. The multidimensional structure allows counsellors to pinpoint specific domains of concern and design targeted interventions accordingly. For policymakers, the availability of a validated psychosocial monitoring instrument strengthens the evidence base for inclusive education policy formulation and resource allocation. PIMES can be integrated into state and national monitoring frameworks to ensure that psychosocial outcomes receive appropriate attention alongside academic indicators.

For monitoring and evaluation practitioners, PIMES fills a critical gap in the assessment toolkit by providing a culturally appropriate, psychometrically sound instrument for tracking the non-academic dimensions of inclusive education. The scale's alignment with international frameworks such as the UNESCO (2020) monitoring guidelines facilitates comparability, while its grounding in the Nigerian context ensures relevance.

Conclusion

This study has successfully developed and validated the Psychosocial Indicators Monitoring and Evaluation Scale (PIMES), a 40-item instrument that assesses five critical dimensions of psychosocial functioning among students with visual impairment in inclusive secondary schools. The findings provide robust evidence for the content validity, construct validity, and reliability of the scale, supporting its utility for research and practice in inclusive education settings. The development of PIMES represents a significant contribution to inclusive education assessment in Nigeria and similar contexts. By providing educators, administrators, counsellors, and policymakers with a psychometrically sound instrument for monitoring psychosocial outcomes, this study addresses a critical gap that has impeded the evidence-based development of inclusive education programmes. The scale's grounding in the Nigerian educational context, combined with its theoretical alignment with international frameworks, ensures both local relevance and global applicability. The importance of psychosocial monitoring in inclusive education cannot be overstated. Students with visual impairment face unique challenges that extend far beyond academic performance, encompassing emotional adjustment, social relationships, self-development, support access, and meaningful participation. Without systematic assessment of these dimensions, inclusive education remains incomplete, addressing only the visible tip of the educational iceberg while the submerged psychosocial realities of students go unrecognised and unaddressed. PIMES offers a practical and scientifically rigorous means of bringing these submerged dimensions to the surface, enabling educators to see the whole child and respond accordingly. This study contributes to the broader field of educational measurement by demonstrating that

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instrument development for special populations can and should proceed from a foundation of cultural relevance, theoretical rigour, and methodological excellence. The systematic seven-stage development process employed in this study offers a model for future instrument development efforts in inclusive education and special education contexts across sub-Saharan Africa and beyond.

Recommendations

Based on the findings of this study, the following recommendations are offered for schools, the Ministry of Education, counsellors, inclusive education practitioners, and future researchers:

1. School administrators should integrate PIMES into their routine monitoring and evaluation systems, administering the scale at least once per academic term to track the psychosocial well-being of students with visual impairment. The results should be used to inform school improvement plans, guide resource allocation, and identify students who may require additional support services.
2. The Federal and State Ministries of Education should adopt PIMES as part of the national and state-level inclusive education monitoring framework. Training should be provided to school personnel on the administration, scoring, and interpretation of the scale. The Ministry should also establish mechanisms for using PIMES data to inform policy decisions regarding inclusive education funding, teacher preparation, and service provision.
3. School counsellors should utilise PIMES as a screening and assessment tool in their work with students with visual impairment. Counsellors should be trained in the ethical administration of the scale and in the interpretation of results for counselling intervention planning. Students identified as experiencing psychosocial difficulties through PIMES administration should receive appropriate counselling support.
4. Inclusive education practitioners should incorporate PIMES into their programme evaluation activities, using pre-test and post-test administrations to assess the impact of inclusive education interventions on student psychosocial outcomes. The scale can also be used to compare psychosocial outcomes across schools, districts, or regions to identify best practices and areas requiring improvement.
5. Future researchers should conduct Confirmatory Factor Analysis (CFA) using independent samples of students with visual impairment to verify the five-factor structure identified in this study. Such studies would provide stronger evidence of construct validity by evaluating model fit indices and confirming the stability of the factor structure across different educational contexts and populations.

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