

Beyond Developmental Delay: Asynchronous and Context Dependent Milestone Attainment Among Children with Autism at the Preoperational Stage

Author Kambole Salimu¹, Author Daniel Ndhlovu²

^{1,2}School of Education, University of Zambia ; Lusaka, Zambia

Abstract:

Understanding developmental milestones among children with autism at the preoperational stage is important for recognising their developmental strengths and support needs. This study examined the developmental milestones exhibited by children with autism at this stage and explored variations in milestone attainment across developmental domains. An interpretive case study approach was used with six parent participants. Three participants had children who were still within the preoperational stage while three had children who had progressed beyond this stage. Participants were selected through purposive and homogeneous sampling. Data were collected through in-depth interviews and non-participant observation checklists and analysed thematically. The findings indicated that children with autism did not demonstrate a uniform pattern of developmental delay. Instead, milestone attainment was asynchronous across developmental domains. Children demonstrated strengths in some areas while experiencing difficulties in others. Differences were observed in communication and language, social interaction, motor development, daily living skills, cognitive abilities, sensory processing and behavioural development. Some children demonstrated developmental abilities inconsistently or only under familiar conditions, with routine, prompting and context influencing performance. The severity of developmental difficulties also varied, with some children experiencing significant delays while others demonstrated moderate delays. The study therefore concludes that developmental milestone attainment in autism should be assessed beyond whether a milestone has been achieved by considering how consistently and under what conditions the ability is demonstrated.

Keywords: Autism; Milestones; Preoperational stage; Asynchronous development; Zambia

1. INTRODUCTION

The development of children is characterised by the attainment of milestones across different domains. These include cognitive, language, social, emotional, motor and adaptive development. Understanding these milestones is important because they provide a basis for recognising children's abilities and identifying areas that may require additional support. Child development is commonly understood as a progressive process in which children acquire increasingly complex abilities as they interact with their environments (Rabindran & Madanagopal, 2020). Parents therefore need knowledge of developmental

milestones to understand their children's abilities and respond appropriately to their developmental needs (Padilla, 2022).

Piaget's theory of cognitive development provides an important framework for understanding childhood development. The theory identifies four stages of cognitive development. These are the sensorimotor, preoperational, concrete operational and formal operational stages (Winstanley, 2023). The preoperational stage occurs between approximately two and seven years of age. It is characterised by the increasing use of language, symbols, mental representation and pretend play. Children at this stage begin to represent objects and experiences through symbols and engage in imaginative activities. However, their thinking remains limited in logical reasoning and is often influenced by centration and egocentrism (Santrock, 2021). The preoperational stage is therefore an important period for examining developmental milestones among children with autism. Children with autism may demonstrate differences in communication, social interaction, play, sensory processing, motor development, behaviour and adaptive functioning. These differences do not necessarily mean that developmental abilities are absent. Some children may demonstrate abilities in one domain while experiencing considerable difficulties in another. Development may therefore occur at different rates across domains.

This pattern raises an important consideration in understanding developmental milestones among children with autism. Developmental differences should not be viewed only in terms of whether a child has achieved or failed to achieve a particular milestone. Attention should also be given to how the milestone is demonstrated, how consistently it is demonstrated and the conditions under which it occurs. A child may demonstrate an ability in a familiar environment but struggle to demonstrate the same ability in an unfamiliar setting. Similarly, a child may demonstrate strong cognitive or academic abilities while experiencing significant difficulties with communication, social interaction or daily living skills. Such patterns point towards an asynchronous developmental trajectory rather than a uniform pattern of delay. Research supports the presence of considerable variability in the developmental profiles of children with autism. Vogindroukas et al. (2022) reported substantial variation in language and speech development among individuals with autism. Lu et al. (2023) identified differences in symbolic play among children with autism while Zhao and Gibson (2022) demonstrated associations between symbolic play and later language development. Motor research has also identified differences in movement and motor proficiency among children with autism (Lourenço et al., 2023; Minissi et al., 2023). Sensory and behavioural characteristics may further influence how children respond to and participate in their environments (Bölte et al., 2021; Wingenbach et al., 2020).

Social and emotional development also demonstrates considerable variability. Children with autism may experience differences in social attention, emotional recognition and emotional regulation (Fujino et al., 2020; Davico et al., 2022). These differences may influence their ability to participate in social relationships and everyday activities. Importantly, the presence of difficulty in one area does not necessarily indicate similar difficulty across all areas. This supports the need to examine developmental milestones across several domains rather than treating autism as a single developmental profile.

The African context presents an additional need for research. Autism remains understudied across Africa and there are significant gaps in research and service provision (Abubakar et al., 2016). Evidence from South Africa and Kenya demonstrates developmental and social challenges experienced by children with autism and their families (de Vries et al., 2020; Masaba et al., 2021; Samia et al., 2020). However, findings from other countries cannot be assumed to represent the developmental experiences of children with

autism in Zambia. Cultural expectations, family practices, educational environments and access to specialist services may influence how developmental abilities are expressed and understood.

In Zambia, awareness of autism has increased although research remains limited. Nkole (2017) reported that the prevalence of autism in Zambia was not known because of the limited number of studies conducted. The study conducted at the University Teaching Hospital identified children who met the criteria for autism through screening. Chalwe (2022) also highlighted the experiences of parents of children with autism within social contexts. These studies demonstrate the presence of autism in Zambia but do not provide a comprehensive account of how developmental milestones are exhibited across different domains during the preoperational stage. The limited Zambian evidence creates a need to examine developmental milestone attainment from a broader perspective. Rather than focusing only on developmental delays, it is important to establish whether children demonstrate uneven patterns of development and whether their abilities vary according to the context in which they are observed. Understanding these patterns may provide a more accurate representation of children's developmental strengths and functional needs.

The present study therefore examined the developmental milestones exhibited by children with autism at the preoperational stage of development. The study focused on the ways in which children demonstrated abilities across different developmental domains. It also considered the variation in milestone attainment among children and the conditions that appeared to influence the demonstration of these abilities. The study was guided by the objective: to examine the developmental milestones exhibited by children with autism at the preoperational stage of development.

2. LITERATURE REVIEW

Language and communication are important developmental domains during the preoperational stage because they support children's ability to express needs, understand others, participate in social interactions and develop increasingly complex forms of thought. Research indicates that children with autism may develop language skills at different rates and may experience differences in both expressive and receptive language. Vigondroukas et al. (2022), in the United States, found that children with autism could be verbal, minimally verbal or non-verbal, with verbal children still experiencing difficulties with semantic aspects of language. These difficulties included understanding abstract concepts, multiple meanings of words and categorisation. Similarly, Cohn et al. (2022) reported that some children with language difficulties engaged in echolalia, which could affect conversational responses and reciprocal interaction. These findings suggest that language development in autism is not simply characterised by the presence or absence of speech but by variation in the complexity, function and consistency of communication.

Pragmatic language presents another important dimension of this variation. Keating et al. (2024), in the United Kingdom, found that children with autism experienced difficulties using language appropriately within different social situations. These included difficulties understanding the unwritten rules governing communication with adults and peers. Patel et al. (2023), in the United States, also identified differences in intonation, rhythm, volume and pitch as well as delays in responding to conversational cues and difficulties with turn taking. These findings demonstrate that a child may possess verbal language while experiencing difficulties using it effectively within social contexts. Language development may therefore occur asynchronously within the same child, with some aspects of communication developing more strongly than others.

Similar patterns have been reported in Asian contexts. Ren (2020), in China, found that children with autism had poorer language skills than typically developing peers and experienced difficulties understanding instructions and implicit meanings. Research in India similarly identified delays in joint attention, imitation, symbolic play and communication while highlighting the potential contribution of early intervention and parent involvement (Naithani et al., 2022). In Japan, Choueiri et al. (2021) reported that developmental concerns such as reduced social smiling, eye contact and delayed first words and phrases could emerge during the early years. African evidence also demonstrates variation in language development. Samia et al. (2020), in Kenya, reported expressive language delays in more than 90% of children with autism reviewed in medical records. In South Africa, Schlebusch et al. (2020) found receptive language difficulties particularly with metaphorical language, sarcasm and social nuances. Collectively, these studies indicate that children may acquire some language abilities while continuing to experience difficulties with more complex or socially appropriate communication. However, limited evidence documents how children with autism in Zambia attain and demonstrate language milestones at the preoperational stage.

Symbolic play represents an important cognitive milestone during the preoperational stage because it reflects children's growing ability to use objects, actions and ideas to represent something that may not be physically present. Symbolic play progresses from simple manipulation and functional use of objects towards more complex forms of representation. Examples include using a block as a car, pretending that a doll is crying or acting as though an imaginary object is present. These forms of play contribute to imagination, language, problem-solving and social understanding (González-García et al., 2021; Lifter et al., 2022; Baron-Cohen et al., 2023).

Children with autism may demonstrate differences in the development and flexibility of symbolic play. The Diagnostic and Statistical Manual of Mental Disorders identifies restricted and repetitive patterns of behaviour and difficulties with imaginative play as characteristic features of autism (APA, 2013). Lu et al. (2023), in China, compared 193 children with autism with 67 typically developing children using the Symbolic Play Test. Children with autism performed significantly lower on forms of pretend play involving object substitution and fictional-object representation. The findings also indicated an association between symbolic play abilities and social adaptation. These findings suggest that symbolic play may develop differently among children with autism. However, the differences do not necessarily indicate an absence of cognitive capacity. Rather, children may demonstrate some forms of play while experiencing difficulties with more flexible or representational forms.

African research provides similar evidence. Samia et al. (2020), in Kenya, found substantial expressive language delays among children with autism which may limit opportunities for symbolic communication and pretend play. In South Africa, Schlebusch et al. (2020) observed lower levels of spontaneous symbolic play among children with autism, with cognitive and language difficulties influencing the flexibility and complexity of their play. These findings demonstrate the interconnected nature of language, cognition and play. They also support the need to consider the specific type and complexity of an ability rather than viewing cognitive development as a single level of functioning. There remains limited evidence concerning how children with autism in Zambia demonstrate symbolic play and other cognitive milestones during the preoperational stage.

Behavioral regulation is another important aspect of development during the preoperational stage. Children with autism may experience attention difficulties, hyperactivity, impulsivity, repetitive behaviours and emotional dysregulation which can influence learning, participation and social interaction.

Zeidan et al. (2022) reported that attention deficits and hyperactivity could make it difficult for children with autism to participate meaningfully in group activities or follow instructions. Sleep difficulties and aggression could further increase challenges experienced at home and school.

Evidence from China, South Korea and Europe demonstrates that behavioural characteristics may occur alongside difficulties in other developmental domains. Tsai et al. (2020), in China, found associations between restricted and repetitive behaviours, communication difficulties, social impairment and hyperactivity or inattention among preschool-aged children with autism. Hong et al. (2021), in South Korea, reported that hyperactivity, impulsivity and difficulties with attention regulation could emerge during early childhood and were associated with behavioural difficulties and parental stress. In Spain, Canals et al. (2024) found that higher levels of hyperactivity among preschool-aged children with autism were associated with difficulties in classroom participation, peer interaction, adaptive functioning and language development. German research further associated behavioural regulation difficulties with executive functioning and co-occurring attention-related symptoms (Wingenbach et al., 2020).

These findings suggest that behavioural characteristics should not be viewed independently from other developmental domains. Hyperactivity, inattention and repetitive behaviours may influence how children participate in learning, social interaction and routines. At the same time, behavioural responses may be influenced by communication difficulties, sensory experiences and changes in routine. This supports a view of development in which children's observable behaviour reflects an interaction between individual abilities and environmental demands. However, the extent to which these patterns occur among children with autism at the preoperational stage in Zambia remains insufficiently documented.

Sensory processing is increasingly recognised as an important factor influencing the developmental and functional experiences of children with autism. Children may demonstrate hypersensitivity or hyposensitivity to sounds, touch, movement, light and other environmental stimuli. Such differences may influence attention, emotional regulation, social participation and engagement in learning. Ewing et al. (2020), in the United Kingdom, reported that auditory hypersensitivity among young children with autism could result in distress, avoidance, reduced attention and anxiety in structured learning environments.

European research further demonstrates the relationship between sensory processing and other developmental domains. Wingenbach et al. (2020), in Germany, found that some children with autism experienced difficulties integrating multiple sensory inputs simultaneously. This could result in confusion in dynamic environments and was associated with reduced attention and repetitive behaviours. In Spain, García-Primo et al. (2020) reported that hypersensitivity to noise and tactile stimuli could interfere with classroom engagement, communication and peer interaction. French research similarly linked sensory overload with emotional distress, anxiety and withdrawal from social environments (Gicquel et al., 2022). These findings indicate that sensory processing is not necessarily an isolated characteristic. Rather, it may influence how children demonstrate abilities across other developmental domains.

Research from other regions provides further evidence of this relationship. In Japan, Fujino et al. (2020) found that sensory processing differences could emerge early including reduced responsiveness to social sensory cues and heightened responses to environmental stimuli. South Korean research linked sensory overload to attention regulation and executive functioning while Canadian research emphasised difficulties integrating visual and auditory information (Kim & Lee, 2021; Garon et al., 2021). In Brazil, environmental factors such as overcrowding, noise and limited access to intervention could intensify sensory challenges (Teixeira et al., 2022). These findings suggest that the expression of developmental

abilities may be influenced by both individual sensory characteristics and the environments in which children function.

African evidence provides important contextual insights. In South Africa, de Vries et al. (2020) found that children with autism demonstrated sensory differences particularly hypersensitivity to noise and tactile stimuli which affected classroom participation and emotional regulation. In Nigeria, sensory reactions to loud sounds, touch and crowded environments have also been reported (Bakare & Munir, 2011). Kenyan evidence similarly indicates that children may experience distress in crowded classrooms and in response to loud or unpredictable sensory input (Abubakar et al., 2016). These findings suggest that a child's performance in one environment may not necessarily represent their ability in another. There remains a need to examine how sensory experiences influence the expression of developmental milestones among children with autism in Zambia.

Motor development includes gross motor skills such as walking, running and maintaining balance as well as fine motor skills such as drawing, manipulating objects and using the hands with precision. Although autism is primarily associated with social communication and restricted or repetitive behaviours, research demonstrates that motor development may also differ among children with autism. Minissi et al. (2023), involving researchers from Spain and Italy, found differences in movement efficiency among children with autism including unnecessary body movements when reaching for objects. The findings suggested difficulties with motor planning and coordination particularly when tasks required precise control. Similarly, Lourenco et al. (2023), in Portugal, found greater difficulties with fine motor control, coordination and balance among children with autism. These difficulties affected activities such as drawing, dressing, playing and classroom participation. Research from the United Kingdom has also identified persistent difficulties in balance, fine motor and gross motor abilities among children with autism (Henderson et al., 2007; Gowen et al., 2019).

These findings are important because motor abilities contribute to children's independence and participation in everyday activities. However, the evidence does not suggest that all motor skills are affected in the same way. Rather, children may demonstrate competence in some motor activities while experiencing difficulty with others. More recent work has highlighted subtle motor characteristics including atypical walking patterns and toe walking which may persist beyond the toddler years and may reflect underlying motor or sensory differences (Freud et al., 2025; Fuller, 2025). This supports the interpretation of motor development as potentially uneven rather than uniformly delayed. Despite international evidence, limited research has documented motor milestones and functional movement abilities among children with autism at the preoperational stage in Zambia.

Toileting is an important adaptive skill that contributes to independence and participation at home and school. Research indicates that children with autism frequently achieve toilet independence later than typically developing children. Delays have been associated with sensory sensitivities, communication difficulties, behavioural rigidity, difficulties recognising bodily cues and the need for consistent routines. In the United Kingdom, Ewing et al. (2020) and Simon et al. (2022) reported that children with autism often experienced delayed continence and required structured interventions involving reinforcement, scheduled toileting, visual supports and caregiver involvement. Swedish research similarly identified sensory discomfort associated with bathroom environments as a barrier to toilet training while structured interventions supported greater independence (Bölte et al., 2021). German evidence linked toileting difficulties with executive functioning, behavioural regulation and difficulties recognising internal bodily cues (Wingenbach et al., 2020; Johnson et al., 2021). Spanish research further identified language

development as an important factor because children with limited expressive language may struggle to communicate toileting needs (García-Primo et al., 2020).

Evidence from the United States similarly supports structured behavioural approaches including scheduled voiding, prompting, reinforcement and visual schedules although outcomes vary according to children's cognitive, communication and sensory profiles (Harms et al., 2020). In Brazil and Mexico, family involvement and environmental stability were identified as important influences on toileting while socioeconomic and service-access barriers could prolong children's dependence on caregivers (Teixeira et al., 2022; Albores-Gallo et al., 2021). African evidence suggests that toileting may present additional challenges where access to specialised intervention is limited. In South Africa, de Vries et al. (2020) associated delayed continence with sensory processing difficulties, communication delays and limited access to early intervention. Nigerian evidence similarly indicates that children may experience distress related to bathroom environments and may remain dependent on caregivers because of limited access to occupational therapy and structured intervention (Bakare & Munir, 2011; Simon et al., 2022). In Kenya, toileting has received limited systematic research although clinical observations suggest delays associated with sensory sensitivities and insufficient individualised support (Abubakar et al., 2016).

Taken together, these findings indicate that adaptive development is influenced by multiple developmental domains. A child may demonstrate progress in toileting while continuing to require support with communication, sensory regulation or other self-care activities. This suggests that adaptive milestones may also be attained asynchronously. There is therefore a need to establish how children with autism in Zambia acquire toileting and other adaptive milestones and how these abilities contribute to independence at home and school.

Social and emotional development is central to children's ability to communicate, establish relationships, participate in play, regulate emotions and function within family and school environments. During the preoperational stage, typically developing children increasingly learn to recognise emotions, regulate impulses, engage in cooperative play and respond to the perspectives of others. Children with autism may experience differences in social reciprocity, emotional recognition, social communication and emotional regulation. Davico et al. (2022), in Italy, found that greater emotional dysregulation among preschool-aged children with autism was associated with lower adaptive functioning across conceptual, social and practical domains. Conti et al. (2024), also in Italy, reported that a substantial proportion of preschool children with autism displayed moderate to severe emotional dysregulation including tantrums, irritability and rapid emotional changes. Masoomi et al. (2025) further found that children with autism showed lower accuracy and slower responses when identifying emotions particularly subtle or complex emotions.

European studies demonstrate the relationship between social-emotional development and other developmental domains. In the United Kingdom, Ewing et al. (2020) found that children with autism demonstrated differences in attention to facial features and reduced accuracy in identifying emotions. Wright et al. (2023) further reported that anxiety, mood-related symptoms and attention difficulties could emerge across childhood. German research linked emotion-recognition difficulties with executive functioning while French research highlighted the role of sensory hypersensitivity in interfering with children's ability to process socially relevant emotional cues (Wingenbach et al., 2020; Gicquel et al., 2022). Spanish research similarly linked language development with emotional recognition and indicated that children with greater language delays also experienced greater difficulty recognising emotions (García-Primo et al., 2020).

Evidence from Asia provides additional explanations for social-emotional differences. In China, Zhao et al. (2021) found that children with autism demonstrated reduced accuracy in identifying facial emotions with these difficulties associated with reduced joint attention and atypical gaze patterns. South Korean research linked emotion recognition with theory of mind and executive functioning and showed that children experienced difficulty integrating facial expressions, tone of voice and contextual information (Kim & Lee, 2021). Japanese research identified reduced attention to emotionally salient facial regions and increased attention to non-social stimuli suggesting that atypical patterns of social attention may emerge early and influence later emotional understanding (Fujino et al., 2020). Research from India found that emotion recognition difficulties were associated with language and imitation delays while also demonstrating that parent-mediated interventions could support children's responses to emotional cues (Divan et al., 2021).

African evidence provides important cultural and contextual dimensions. In South Africa, Melamu et al. (2024) found that parents recognised social differences such as reduced eye contact, limited shared attention and differences in play but interpreted these behaviours through culturally specific understandings of child development. Berson and Adams (2024) showed that disruptions to routines, reduced social contact and loss of structured school activities could intensify social and emotional difficulties among children with autism. In Nigeria, Azubuike et al. (2025) reported that difficulties with social cues, emotional outbursts and resistance to change could make playdates, classroom activities and family gatherings challenging. Kenyan research similarly identified delayed social milestones, limited play variety, meltdowns and anxiety in uncertain situations (Masaba et al., 2021).

Importantly, African studies also highlight variability among children with autism. Not all children are socially withdrawn. Some may initiate play in predictable or ritualised ways while others may demonstrate stronger social engagement with particular siblings or within restricted social groups (Aderinto et al., 2023; Melamu et al., 2024). Cultural expectations may also influence how behaviours are recognised. For example, limited eye contact may be interpreted differently across cultures which may affect recognition of developmental differences. These findings reinforce the importance of examining social and emotional development within the cultural and environmental context in which children live.

Synthesis of literature and research gap

The reviewed literature demonstrates that developmental milestones among children with autism at the preoperational stage are multidimensional and interconnected. Difficulties in language may affect social communication and symbolic play. Sensory sensitivities may influence attention, emotional regulation and classroom participation. Motor difficulties may affect independence and play while behavioural and emotional regulation difficulties may interfere with learning, social interaction and adaptive functioning. Toileting and other adaptive skills are similarly influenced by communication, sensory processing, behavioural regulation and the availability of structured support.

Importantly, the literature does not present a single developmental pattern among children with autism. Across language, symbolic play, motor development, sensory processing, behaviour, adaptive skills and social-emotional development, children may demonstrate strengths in one area while experiencing difficulties in another. Some abilities may also be expressed more consistently in familiar environments or when appropriate support is provided. The literature therefore supports understanding autism-related development as heterogeneous, asynchronous and influenced by context rather than solely as a pattern of developmental delay.

Evidence from international and African contexts demonstrates substantial variation in developmental trajectories. However, findings from other countries cannot automatically be assumed to represent the experiences of children in Zambia because developmental expectations, family practices, educational environments, cultural interpretations and access to intervention may differ. African studies from South Africa, Kenya and Nigeria provide useful contextual evidence but remain limited in comparison with research from Europe, Asia and North America.

There remains a significant gap in evidence concerning the developmental milestones and functional abilities of children with autism at the preoperational stage in Zambia. In particular, limited evidence explains how children demonstrate developmental abilities across different domains and whether these abilities are expressed consistently across contexts. The present study therefore sought to address this gap by examining the developmental milestones and functional abilities of children with autism at the preoperational stage through parents' lived experiences. The study provides a contextual understanding of how developmental abilities, delays, strengths and variations were experienced within the Zambian setting.

3. METHODOLOGY

This study was guided by the constructivist research paradigm, which posits that reality is socially constructed through individuals' subjective experiences and interactions. Creswell and Poth (2018) argue that constructivism is a worldview in qualitative research that emphasises understanding the meanings individuals or groups assign to their experiences, acknowledging the existence of multiple realities rather than a single objective truth. It utilised the hermeneutic phenomenological design to explore the development of children with autism at the preoperational stage of development through first hand experiences of parents. The design enabled an in-depth exploration of lived experiences of parents in relation to how their children developed between ages two to seven. The study was conducted in Lusaka province at Bauleni Special School in Zambia, where parents whose children have been formally diagnosed and attend the school were identified and interviewed to share their experiences.

3.1 RESEARCH DESIGN

The study was guided by hermeneutic phenomenology design propounded by Edmund Husserl. Husserl (1970) introduced phenomenology as the study of lived experiences. This was in a bid to uncover the essence of phenomena as they appear to one's consciousness. Within the constructivist research paradigm, hermeneutic phenomenology aligns closely with the belief that multiple realities exist and that knowledge is co-constructed between the researcher and participants (Guba & Lincoln, 1994). Therefore this research design was chosen because it guided the interpretation of life worlds which are lived body, lived space, lived time and lived human interactions. These four lifeworlds also known as existentialism were proposed by Manen (1990) who postulated that these lifeworlds are not abstract concepts but dimensions of everyday experience through which people make sense of their world. They help researchers attend to the depth of human experience through the four dimensions. This therefore was best suited to explore the lived experiences of parents in observing and managing their children's developmental differences.

3.2 STUDY POPULATION

The population of this study were parents who have experience in rearing children at the preoperational developmental stage with autism in Lusaka. These parents were selected because they have experience of rearing children with autism at the preoperational developmental stage which was central to the study objectives.

3.2 SAMPLE SIZE

In qualitative studies the size of the sample is not pre-determined. It is arrived at during data collection by saturation. The total estimated number of participants for the study was six (6), with data collection continuing until data saturation was reached, ensuring that no new information or themes emerged. Morse (1994) and Guest et al (2020) have argued that data saturation can be reached beginning from six participants. Three parents were from the urban area of Lusaka while the other three parents were from the peri-urban of Lusaka. This was in a bid to get an understanding of different experiences from parents of different parts of Lusaka.

3.3 PARTICIPANTS

Six participants of children with autism were purposively selected using purposive sampling. Only participants who directly raised children and were still with them were eligible for the study. Additionally, the children needed to have been formally diagnosed with autism.

3.4 SAMPLING PROCEDURE

The data was collected from Bauleni special school. This site was chosen because this is a school for children including those with autism. There was a register for family history. From the register a selection was made of parents who have children that have been certified to have autism and are or have passed the preoperational developmental stage. Additionally, the selection was made based on parents who were willing to share their lived experiences.

3.5 DATA COLLECTION

For this study, semi-structured interview guide and a non-participant checklist was utilised. The focus was on the lived experiences of parents in rearing children with autism at the preoperational developmental stage. Since phenomenological and constructivist research aims to explore how people make sense of their own experiences, interviews and observations are especially valuable. They not only give participants the chance to describe their experiences in their own words but also allow the researcher to see and understand the real-life contexts in which those experiences take place.

3.6 DATA ANALYSIS

Therefore data analysis was conducted using thematic analysis following the six stages as outlined by Braun and Clarke (2006) which are familiarization with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes as well as report writing. This method of data analysis was chosen because it provided a flexible yet thorough framework for identifying, analyzing and reporting patterns within the data collected.

3.7 ETHICAL CONSIDERATION AND TRUSTWORTHINESS

The researcher sought ethical approval from the Humanities and Social Science Ethics Committee of the University of Zambia. The researcher strictly observed ethical standards throughout the study. All participants were interviewed upon agreeing voluntarily.

In qualitative research, ensuring the trustworthiness of findings is critical, as it establishes the thoroughness of the study. Trustworthiness is evaluated using four criteria which are credibility, transferability, dependability and confirmability (Guba, 1985; Shenton, 2004). Therefore, credibility was strengthened by using different data collection instruments. The study provided detailed accounts of participants' experiences in rearing children with autism. The study highlighted family structures and socio-economic backgrounds in order to support potential transferability. To ensure dependability, the researcher scrutinised all research activities including data collection and analysis. This systematic scrutiny paved the way for consistency in the research. In this study, confirmability was achieved by

keeping a clear record of data and interpretations, the researcher ensured that conclusions were grounded in the participants' perspectives.

4. RESULTS AND DISCUSSIONS

For this study, the researcher conducted interviews with six participants who had loved experiences on how children with autism develop between two to seven years. Their responses reflected the challenges that children with autism go through as they develop as well as how parents struggle through this phase of raising their children.

Table 1. Development of emergent themes

Main Theme	Sub-Themes	Code/indicators (Participants Expressions)	Verbatim Extracts "Participants"	Key findings
Motor development and daily living skills	Gross motos skills, fine motor skills,	Difficulty with balance, coordination difficulties, difficulty manipulating objects.	"It was hard for C1 to learn how to write. We always had to hold her hand." "She cannot use a spoon." "He was not able to play with his friends as he would struggle with basic ball handling while he could do basic coloring"	Motor abilities developed at different rates. Some children demonstrated independence in selected tasks while requiring assistance in others. This reflected uneven functional development across activities.
Communication and language challenges	Expressive language; receptive language; pragmatic communication; echolalia	Delayed speech; difficulty expressing needs; difficulty following instructions; difficulty maintaining conversations; repetition of words or phrases; communication	"My child sometimes will cry uncontrollably for hours." "Up to age six whatever he said we could not understand." "We just noticed that my child was not learning how to talk no matter	communication development was uneven. Some children demonstrated functional communication while experiencing difficulties with more complex or socially appropriate

		varying across situations	how much we spoke to him.” “I noticed that suddenly my child had lost her speech.”	language. This indicated asynchronous language development rather than complete absence of communication ability
Adaptive Developmental milestones	Daily living skills Grooming self care	dependence during self-care; gradual acquisition of toileting skills	“She was not able to be potty trained till age six.” “my child could not brush teeth or even wear things like his underwear for a long time.” “We had to feed him for years even after he was six.”	Most children experienced delay in development of adaptive skills while these areas would eventually develop they took longer than expected sometimes even fluctuating.
Sensory sensitivities	Auditory sensitivity; tactile sensitivity; visual sensitivity; sensory regulation	sensitivity to noise; discomfort with touch; distress in crowded environments; difficulty participating when overstimulated; seeking or avoiding particular sensory experiences	My son is sensitive to noise and prefers quiet spaces.” “She is very picky with food.” “My son is not the huggy type.” “We cannot go to church or where there are a lot of people then he will start crying.”	sensory experiences influenced the expression of abilities. Children who demonstrated an ability in one context could experience difficulty demonstrating it under high sensory demands. This highlighted the context-dependent nature

				of developmental performance.
Cognitive development	Cognitive strength	Can remember literal things taught	“ my child can count to 100.” “He can understand information in one way if you present it in a different way he will be confused.”	High levels of cognitive strength for recall of literal information but not analysis or synthesis.
Social interactions and play behaviours	Social engagement; peer interaction; emotional expression; emotional regulation; social responsiveness	limited eye contact; limited initiation; difficulty interacting with peers; difficulty expressing or recognising emotions; stronger interaction with familiar people	My child prefers to play alone and not with friends.” “She is not able to follow the rules of the game that her friends play so she ends up alone.” “Sometimes he will not know that his friends are angry at him for what he has done.” “When I play with her or if she plays on the phone she is able to enjoy.”	Social and emotional abilities varied between children and across situations. Some children demonstrated meaningful interaction in familiar or preferred contexts. This indicated context-dependent social development rather than a complete absence of social ability.
Repetitive Behaviours	repetitive behaviours; insistence on routines.	resistance to change; repetitive movements; restricted interests;	“ She plays with the same toy the same way. For a long time” “ He finds it hard to change	Children tended to play with the same objects over and over with no signs of getting bored.

			activities. Sometimes he will cry.”	Children engaged in outbursts if an object or activity was discontinued.
Overall developmental milestone	developmental variability; asynchronous development; gradual attainment; individual differences; contextual performance	different rates of development; strengths and difficulties occurring together; abilities demonstrated inconsistently; influence of routine; influence of prompting; variation across settings		The overarching finding was asynchronous and context dependent developmental milestone attainment. Children did not follow a single developmental trajectory. An ability could be present but demonstrated inconsistently or under particular conditions. Milestone attainment was therefore best understood through attainment, consistency and context

4.1 DISCUSSION OF FINDINGS

4.1.1 Motor development and daily living skills

The findings showed difficulties in motor development and daily living skills including coordination, balance, fine motor control, feeding, dressing and toileting. However, these difficulties were not experienced uniformly across the children. Some children demonstrated functional abilities in particular activities while requiring assistance in others. This suggests that motor and adaptive development occurred asynchronously rather than following a consistent pattern across domains. Similar differences in motor proficiency among children with autism have been reported by Lourenço et al. (2023) and Minissi et al.

(2023). The findings further suggested that the presence of an ability did not always correspond with independent performance. Some children required prompting, repetition or familiar routines to complete activities. This indicates that adaptive functioning may develop at a different rate from other developmental abilities. Therefore, assessment of motor and daily living milestones should consider not only whether an ability has been achieved but also the level of independence and consistency with which it is demonstrated.

4.1.2 Communication and language

The findings showed significant differences in communication and language development including delayed speech, difficulties expressing needs and challenges in understanding spoken language. However, the findings did not suggest a complete absence of communication abilities. Rather, children demonstrated different forms and levels of communication across situations. Some children could communicate basic needs in different ways but experienced greater difficulty with social communication and more complex language. This demonstrates that language development may occur asynchronously within the same child. These findings are consistent with Vogindroukas et al. (2022), who identified considerable variation in language and speech characteristics among children with autism. Keating et al. (2024) similarly reported difficulties in pragmatic language as well as semantic language difficulties affecting concept categorisation, abstract thinking and understanding multiple meanings of words.. Cohn et al. (2022) further demonstrated that echolalia may serve communicative functions rather than representing an absence of meaningful communication. The findings therefore suggest that communication should be considered in terms of function, flexibility and context rather than speech production alone. A child may possess a communication ability but may not demonstrate it consistently across different communicative situations. The present study therefore confirms that language and communication deficits remain a major developmental challenge affecting learning and social interaction among children with autism.

4.1.3 Adaptive developmental milestones

The study revealed difficulties in adaptive skills including feeding, dressing, toileting and completing routine activities independently. However, the children demonstrated varying levels of emerging independence. Some were able to perform aspects of these activities but required prompting or assistance to complete them consistently. This indicates that adaptive development did not always progress at the same rate as other developmental abilities. Davico et al. (2022) similarly identified a relationship between emotional dysregulation and adaptive functioning among preschool children with autism and other neurodevelopmental disorders. The findings also suggested that communication, sensory sensitivities and behavioural characteristics influenced children's ability to perform daily living tasks. Consequently, adaptive milestones should not be classified simply as achieved or not achieved. Greater attention should be given to the child's level of independence, consistency and the conditions that support successful performance. The present study therefore highlights that deficits in adaptive and self-care skills negatively affect children's independence and increase reliance on caregivers during the preoperational developmental stage.

4.1.4 Sensory sensitivities

The findings showed that children experienced sensory sensitivities involving sounds, touch, light and other environmental stimuli. These sensitivities influenced participation in learning, social activities and everyday routines. Importantly, sensory responses appeared to affect the expression of abilities in other developmental domains. A child could possess the ability to participate in an activity but experience difficulty demonstrating that ability when exposed to overwhelming sensory stimulation. This suggests

that sensory processing may contribute to the context-dependent expression of developmental milestones. These findings are consistent with Bölte et al. (2021) and Wingenbach et al. (2020), who highlighted the relationship between sensory processing, executive functioning and broader behavioural functioning in autism. The findings therefore indicate that sensory characteristics should be considered when assessing developmental abilities because performance in a highly stimulating environment may not reflect the child's full developmental capacity. This further supports the interpretation that developmental performance may vary according to environmental conditions.

4.1.5 Cognitive strength

The findings revealed that children with autism have difficulties in symbolic thinking, following instructions and imaginative play. However, these difficulties coexisted with cognitive strengths among the children. This indicates that the children did not demonstrate a uniform pattern of cognitive delay. Instead, cognitive development appeared uneven with particular abilities emerging alongside difficulties in symbolic representation, flexible thinking or complex instructions. Lu et al. (2023) similarly identified differences in symbolic play among children with autism while Zhao and Gibson (2022) demonstrated associations between symbolic play and later language abilities. The coexistence of cognitive strengths and difficulties is important because it demonstrates that developmental assessment should not focus solely on deficits. A child may demonstrate strong abilities in one area while experiencing significant difficulties in another. Therefore, cognitive development during the preoperational stage should be understood as a varied developmental profile rather than a single level of functioning. This finding provides support for interpreting development as asynchronous rather than assuming that difficulties in one cognitive area reflect general cognitive delay.

4.1.6 Social interactions and behaviour

The study revealed difficulties in eye contact, social engagement, peer interaction and emotional expression. However, social abilities varied according to the child and the situation. Some children demonstrated social engagement with familiar people or during preferred activities while experiencing greater difficulty with peers or unfamiliar situations. This suggests that social development was not uniformly impaired but was influenced by the context in which interaction occurred. Fujino et al. (2020) identified differences in social attention among children with autism while Davico et al. (2022) highlighted the relationship between emotional regulation and adaptive functioning. The findings further indicate that limited social interaction in one setting should not automatically be interpreted as an absence of social capacity. Instead, the child's familiarity with the environment, communication demands and social expectations should be considered when assessing social and emotional milestones. This context-dependent pattern further demonstrates that the expression of a developmental ability may vary even when the underlying ability is present.

4.1.7 Repetitive behaviours

The findings showed hyperactivity, attention difficulties, emotional outbursts, repetitive behaviours and difficulties adjusting to changes in routines. These behaviours affected children's participation in learning, social interaction and everyday activities. However, the findings suggested that behavioural characteristics were often connected to other developmental factors such as sensory sensitivities, communication difficulties and changes in routine. This indicates that behavioural responses may sometimes reflect difficulties managing environmental demands rather than simply a lack of behavioural control. Tsai et al. (2020) similarly highlighted behavioural problems among children with autism while Wingenbach et al. (2020) demonstrated relationships between sensory integration and executive functioning. Repetitive

behaviours also appeared to provide familiarity and predictability in some situations. The findings therefore suggest that behavioural development should be interpreted within the broader developmental context of each child. Rather than viewing these behaviours only as deficits, understanding their relationship with sensory experiences, communication and environmental demands may provide a more accurate account of children's functioning.

Asynchronous and context dependent development

Across the developmental domains, the most significant finding was the asynchronous nature of milestone attainment. The children did not demonstrate the same level of development across all domains. Strengths in one area often coexisted with difficulties in another. Furthermore, some abilities were demonstrated inconsistently or became more evident when children were in familiar environments, following established routines or receiving appropriate prompting. This indicates that developmental ability and the observable expression of that ability were not always the same. The findings are consistent with the broader literature which demonstrates considerable heterogeneity in language, motor, cognitive, sensory and behavioural development among children with autism (Vogindroukas et al., 2022; Lourenço et al., 2023; Bölte et al., 2021; Wright et al., 2023). The present findings extend this understanding by showing that variation was evident not only between developmental domains but also within the same child's performance across contexts. The findings therefore suggest that milestone attainment among children with autism should be understood through three dimensions which are attainment, consistency and context. Attainment considers whether an ability is present. Consistency considers how reliably it is demonstrated. Context considers the environmental and social conditions that influence its expression. This interpretation moves beyond viewing autism only through developmental deficits and provides a more nuanced understanding of how children demonstrate developmental abilities during the preoperational stage.

5. CONCLUSION

This study explored the developmental milestones exhibited by children with autism at the preoperational stage. The findings revealed varying patterns of development across different domains. Although delays and difficulties were evident, these did not occur uniformly across the children. Some children demonstrated strengths in particular areas while experiencing significant difficulties in others. Development therefore appeared asynchronous across communication and language, social interaction, motor development, daily living skills, cognitive abilities, sensory processing and behavioural development. Some abilities were demonstrated gradually and varied according to familiarity, routine, prompting and context. The findings suggest that milestone attainment should be understood through attainment, consistency and context rather than simply whether a milestone has been achieved. The study contributes context-specific evidence to the limited literature on children with autism at the preoperational stage in Lusaka, Zambia. The findings also emphasise the importance of community sensitisation, early identification and appropriate support to equip parents and promote children's developmental outcomes.

RECOMMENDATIONS

Stemming from the findings of this study, the following recommendations are presented in order to support parents in raising their children as well as support children with autism to develop with medical or therapeutic support. Government: The Government should partner with the Ministry of Health to provide free or subsidised therapeutic services through speech therapists, occupational therapists and educational psychologists. This would improve access to essential developmental support for children with autism.

Government and relevant stakeholders: To establish a coordinated national autism support organization or strengthen an existing one to serve as a central point for advocacy, awareness creation, parent education, service coordination and referrals to healthcare and educational services.

Parent education and training: Parents should be provided with practical training on developmental milestones and ways of supporting their children with communication, play, self care, social interaction and learning at home. This would help parents understand their children's abilities.

Psychosocial and counselling support for parents: The findings on parental struggles could inform the establishment of counselling and psychosocial support services. Parent support groups could also provide opportunities for parents to share experiences, strategies and resources they have used and have found to be effective.

STUDY IMPLICATIONS

Policy Implications: Policies are a statement of intent through which it becomes easy for nationwide implementations to take place. Therefore, the Government should strengthen policies not only for early identification, assessment but also intervention for children with autism. The future policies on disabilities should promote accessible and affordable autism services and provide financial and psychosocial support for parents. There is a need for policies that should strengthen inclusive education and teacher training in autism support.

Practice Implications: Health and education professionals should partner in order to provide and routinely monitor developmental milestones and functional abilities of children with autism. Schools and practitioners should provide individualised interventions based on each child's developmental strengths and needs. Parents should receive practical training, counselling and guidance to support their children's development at home.

Research Implications: Further research should examine long term developmental outcomes of children with autism in Zambia. Future studies should explore parents' experiences with available health, education and social support services. Research should evaluate the effectiveness of any parent training and early intervention programmes available for children with autism in Zambia.

Social implications: There is a need for communities to be aware of the different development experiences children with autism have. This will lead to a reduction in parents failing to move with their children around and reduction in societal stigma and shame associated with children who may be growing different from the typical children society is familiar with.

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