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Exploration of the global developmental delay cues in children through peer-related interactions among pre-schoolers in school environments

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Abstract

The study explored if and extents to which peer-related interactions provide signs of global developmental delays and suggest the appropriate measures (if any). It involved six hundred and twelve 612 respondents among which five hundred and fifty-eight (n=558) were preschoolers randomly selected using the lottery method and fifty-four (n=54) teachers conveniently selected. Mixed approach with a cross-sectional design, using observation for preschoolers and interview for teachers, the analysis made using ANOVA and Chi-square, with a statistically significant p-value of $p \leq .05$ and confidence level of 0.95 (CL of 95%) with the application of SPSS version 20 and thematic content analysis. Only 3.2% of preschoolers were in very serious delays in the cognitive domain on communication difficulties showing no significant difference in sex and their class level, 14.5% in physical delays with an inability to perform simple tasks significantly with their age and 1.4% showed behavioural delays as they always need reprimanded, restless and prolonged tantrums while 0.7% were unable to participate in discussions significantly with their age and sex. Above 50% of teachers suggested about Early Intervention (EI) to children with developmental delay signals. Interactions should start to children below school age for Early Stimulation (ES), additionally, parents and caregivers are to be provided with guidelines from experts as a way to identify and or resolve the problem, a longitudinal study can be done on developmental delay cues from the age of three to eight years can be conducted, but also large sample from the survey could be used for generalisation.

Keywords:
Global development delays,
Peer-related interactions,
Pre-schoolers

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Introduction

Developmental delay can be described as a lag from normal developmental milestones that is age-specific tasks which most children can do at a certain range in the areas of four domains which are physical, cognitive, psychomotor and affective domain (Shaahmadi, Khushemehri, Arefi, Karimyan, & Heidari, 2015). Children developmental delays can be categorized into two types the first type is global developmental delays that is a delay in two or more domains in most cases delayed in all domains and the second type is a specific developmental delay that is a delay in a single domain (Ying, Pratibha, Choon, & Sita, 2019) Generally, developmental delay commonly affects 1-3% of the population mostly the first type which is global developmental delays, the exact causes of developmental delays are still unknown but they are resulted from biological or clinical which includes hereditary problems, infectious diseases, problems with pregnancy and premature birth where on psychological there are severe caregivers under-stimulation, rejection, and maltreatment and lastly the social-environmental factors including parent's educational level, family economic status, number of children and other family members, restricted breastfeeding, mother's parenting time and malnutrition (Mithyantha, Kneen, McCann, & Gladstone, 2017) In the process of development, developmental delays can be subdivided into minor or major delays this means that it can be short-term, long-term or permanent but when falls under long-term and permanent is called developmental disabilities (Kyla, 2010). Globally, in developed countries such as the United States, 1 in 6 children (17%) aged between 3 to 17 years was reported to have developmental disabilities between the years 2009 to 2016 but for other developmental delays the statistics seem to decrease to approximately 12 to 15% in the year 2018 (Hirai, Kogan, Kandasamy, Reuland, & Bethell, 2018)

However, there is approximately 43% of under 5 years in middle and low-income countries are at high risk and challenges of development including developmental delays (EGPAF, 2018) whereby in a country such as South Africa the common disorders are intellectual disabilities and developmental delays in almost every population reaches 1 to 5% (Fleggen, Lamble, & Donald, 2019). According to Tanzania Demographic and Health Survey, the 2016 report shows that 1 in every 3 children who are under 5 years is stunted or short for their age as a result of malnutrition while 14% are underweight (UNICEF, 2018).

Problem statement

Delays in development to children goes beyond just slow or a little behind to development, meaning that the child might continue being lagging in acquiring expected skills by a certain age comparing their fellow age mates. Unfortunately, 30 to 50% of developmental disorders including developmental delays are not detected till school age (Yaghini et al, 2015). From this regard, therefore, the greater number of children faces various challenges including physical, social and psychological as a result of developmental delays which were supposed to have been identified earlier before schooling for provision of early intervention. This study, therefore, tries to find out if there are any signs of global developmental delays to be detected through peer interactions among early childhood children in schools.

The purpose of this is to find out if there are any signs of global developmental delays that can be detected through peer interactions among early childhood children in schools based on the following objectives

i. Explore if and the extent to which peer-related interactions provide cues on global developmental delays

ii. Suggest the appropriate measures (if any) to those children that have shown the signs of global developmental delays.

The study questions to be explored were

i. To what extent is peer-related interactions provide a cue on global developmental delays?

ii. What are the appropriate measures if any for those children that have shown the signs of global developmental delays?

Results are expected to create awareness to teachers and parents on earlier detection and making Early Intervention (EI) to children with developmental delays but also improving children's situation by allocating and placement in schools according to the severity in developmental delays or disorders and

not only but also make a clear distinction between developmental delays and disabilities, lastly, the society should make sure it provides equal o pportunities to education for all children regardless their weaknesses.

Literature review and theoretical Approach

Types of developmental delays

Development in children is an ongoing process whereby children advance from reliance on all the requirements from caregivers at infancy stage, then after the child acquire the sense of independence at primary school age or late childhood stage, adolescence and adulthood (WHO, 2007). Developmental skills in children are holistic which appear in several connected dimensions or domains which are cognitive, communication, socio -emotional and psychomotor (World Bank [WB], 2009). According to UNESCO (2006) in each domain development progress throughout a sequence of steps called milestones which engage competence and mastering of simple skills previous to complex skills, however, the development of skills in children is influenced by interactions within their environment. Palejwala & Fine (2015) argued that in overall measurements of early cognitive capabilities girls seems to have high score wherein a specific cognitive domain seems to differ with boys for instance memory in verbal and processing speed opposite to boys who found to contain stronger visual processing.

Type of interaction among peers in schools

Social skills in five years olds can be differently classified into, the planners, the instigators and controllers in a play, to be bodily and orally active; therefore those who will react appropriate will maintain interaction and establish play agenda and or initiate change while those who respond inappropriately are insufficiently persistent and often overlooked these are isolates (Wenner, 2009). Additionally, changes during development result from multidirectional interactions between factors which are biological and environmental influences such as relationships between parents and children, involvement in community activities and norms and standards of a given culture in a course of time (Shonkoff & Philips 2000; Hunt, 2020). Pupils vary in terms of collaboration, some are supportive and productive, others are more dictate others are inactive and missing out while others are disparaging and unsupportive, this means differences which is essential since teachers can use these differences to teach accordingly, therefore, the quality of learning and classroom process can be affected by peer relations hence any difficulties are to be set on by teachers (Virginia, Leslie, Jason, & Amanda, 2011).

Relationship between child developmental delays and peer interactions

in comparing children development, among things that are difficult to compare in typically developing children are correspondingly low levels of persistent group play, limited efforts to initiate, organise and or influence social play and high level of solitary play low rates of attaining appropriate responses to and from those tried to do (Kopp, Baker, & Brown, 1992). Ertem et al. (2018) commented that children develop different skills at different rates because of individual differences are however the majority of them attain motor skills alongside their age and it is also revealed that most children achieve their developmental milestones significantly at different ages. Palejwala & Fine (2015) argued that the overall measurement shows that in early cognitive capabilities girls achieve higher than boys. Guralnick & Groom (1987) argued that children of preschool age who show cognitive developmental delays and those with mild delay shows considerable problems to create relationships and to develop friendships with their peers and in social activities concerning peers whereby they exhibit the patterns such as lower levels of social participation but higher levels of solitary play, more negativity and dissatisfaction through interactions and an abnormal hard interactive way in conflicts for example prevalence of negative and lack of conciliation approach, less achievement in gaining a positive reply to their social proposals and fewer interactions during play, an abnormal developmental series in interactions and the one which is simply disturbed by environmental change, forming an inadequate number of mutual friendships, less acceptance by mildly and typically developing peers found on peer socio-metric and behavioural measures

across the school and community settings. Interactions in peers happen to be more and more complex over preschool years, in which it is the period with greater coordination, communication, and turn-taking more complex and mutual fantasy in play and a more shared positive influence, though, not completely supportive and constructive it can also be stated that disputes in preschoolers' is over toys and can go up into verbal and physical violence and or aggression (Holmes-Lonergan, 2003). Indeed, aggression is at its peak during early childhood whereby the kind of interactions seems to be highly emotional thus arousing both positive and negative abilities to regulate them and therefore they are critical at this stage in assuring competency in interactions during this stage and for the later development of peer social competencies (Campbell, 2002; Tremblay, 2000; Schanke 2021). Furthermore, Lisa, Ulrike, Mark, & Paul (2016) argued that in terms of expression of emotional competencies, regulations and recognition girls are better than boys while in the case of behavioural problems boys show greater levels of hyperactivity.

Theoretical approach

This study is guided by Social Learning Theory (SLT) as proposed by Lev Vygotsky (1896-1934). Topçiu & Myftiu (2015) suggested that to attain higher potentials in learning they need to be encouraged and assisted therefore children can learn better under the close supervision of adults. From this explanation Vygotsky asserted three major themes of the theory, first is social interaction is a function of development in a child's culture which showed twofold, as a level of the society and as a level of an individual, secondly is more knowledgeable, that is for the child to understand better there should be a guidance from the more knowledgeable peers and/or adults and thirdly Zone of Proximal Development (ZPD) this is a difference in child's capacity to carry out tasks through adult supervision and with peer cooperation also the ability to independently solve the problem(s). This study, therefore, employed the first and third themes of the theory that for the child to learn there should be a better social interaction which includes child's cultural backgrounds or cultural development relying on the social and individual level of the child and also through the zone of proximal development (ZPD) that is the gap which is seen as they interact/learn by themselves and through guidance from peers or adults. Through social interaction and ZPD is where all the potentials of the child can be explicitly observed, and it is where children with global developmental delays are ought to be identified.

Methods

Case study

The study was conducted at Morogoro Municipality which has been conveniently selected, like the fact that it is a town with multi-ethnic groups and highly urbanized therefore made it possible to have the population and sample that represent other areas of the region.

Approach and design

The study used a mixed approach with quantitative and qualitative aspects where the cross-sectional design was applied for data collection and analysis, with observation for pupils and interview for teachers being the data collection tools/instruments.

Population, Sample and Sampling procedure

Population

The study consisted of three types of the population which were the Government pre-schools, pupils (preschoolers) and teachers. There were sixty-two (N=62) government pre-primary schools found within government primary schools in twenty-nine (N=29) wards; as from 2014 Tanzania Education and Training Policy (TETP) that every government primary school must contain a pre-primary school unit of education (MoEVT, 2014). The population of pupils/pre-schoolers was one thousand eight hundred and sixty (N=1860). There was a population of one hundred and eighty (N=180) teachers

Sample

The sample consisted of eighteen (n=18) pre-schools, five hundred and fifty-eight (n=558) preschoolers and fifty-four (n=54) teachers which obtained from thirty per cent of the population this is to say that, there were thirty-one (n=31) pre-schoolers in each school

who were involved in the study and three (n=3) teachers from each selected school. It is argued by Frankel & Wallen (2014) that the sample size in quantitative study ought to be not to be less than thirty per cent of the population.

Sampling procedure

The probability sampling technique was used to obtain the sample for schools and pre-schoolers, the researcher used a lottery method to obtain the selected sample while the non-probability sampling technique on which convenience sampling technique was employed to obtain teachers' sample.

Results

The study comprised 612 respondents divided into two categories, pre-schoolers/pupils and teachers. Pre-schoolers/pupils were five hundred and fifty-eight (n=558) with three different categories, where the first category was an age in which 50(9%) had four years of age, 208(37%) had five years and 300(54%) had six years of age. The second category to children was gender whereby 270(48.4%) were male while (51.6%) were female and the last category was class level in which 270(48.4%) were in class one or year one of study and 288(51.6%) were in class two that is year two of study. The second type of respondents were teachers (n=54) who are teaching these preschoolers where two categories were involved, experience and gender. It was found that 10 (18.5%) had an experience of one to three years, 32 (59.3%) had three to five years, 07(13%) had six to ten years and 05(9.2%) had more than ten years teaching experience.

Table1 : Key characteristics of respondents

Respondents	Category	Variables	Frequency	Percentage (100%)
A. Pupils/Pre-schoolers	Age	4 5 6	50 208 300	9 37 54
	Sex	Male Female	270 288	48.4 51.6
	Class level	Class(year1) Class(year2)	154 404	27.6 72.4
B. Teachers	Experience	1-3 4-5 6-10 10+	10 32 07 05	18.5 59.3 13.0 9.2
	Sex	Male Female	18 36	33.3 66.7

Analysis procedure

The study involved descriptive and inferential statistics together with thematic analysis by objectives as shown in table 2 below.

Table2 : Analysis of Variables

Objectives	Variables	Patterns of analysis	
Explore if peer-related interactions will provide any cues on global developmental delays	Sex, Age Class level	Frequencies and percentages	ANOVA Chi-square
Suggest the appropriate measures if any to those children that have shown the signs of global developmental delays.	Sex Experiences	Themes	Thematic analysis

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Global development delay cues portrayed among preschoolers through peer-related interactions

The study aimed at exploring if peer-related interactions will provide any cues in developmental delays among preschoolers, the study focused on in-class and out of class interactions. Firstly the researcher was interested to find out the signs which might be related to cognitive delays found in an in-class interaction. The results are summarized in Table 3 below.

Table3 : Global development delay cues through peer-related interactions

Type of interaction In-class interactions	Not serious	Extent Serious	Very serious
Difficulty in communication	500 (89.6%)	40 (7.2%)	18 (3.2%)
Difficulty in paying attention	358 (64.2%)	190 (34%)	10 (1.8%)
Problem-solving abilities don't seem to know what is going on in class therefore must be helped to get started and keep going	540 (96.7%)	12 (2.2%)	6 (1.1%)
Speech and/or language development through identification of colours, body parts and shapes	548 (98.2%)	7 (1.3%)	3 (0.5%)
Expressive language (vocabulary and sentences for his or her age)	550 (98.6%)	6 (1.1%)	2 (0.3%)

The researcher found that in observations made on five categories; Results showed that 500(89.6%) out 558 pre-schoolers were not observed to have difficulty in communication while 40 (7.2%) observed with serious signal and 18 (3.2%) were observed with extent of not being very serious, in the second category 358 (64.2%) were observed to have to have difficulty of paying attention with being not serious to be detected as a sign for delays while 190 (34%) with a serious note and 10 (1.8%) with very serious signal of developmental delays, in the third category which was the case of problem solving abilities showed that 540 (96.7%) of pre-schoolers in fluctuated situations that is not serious seems doesn't take independent initiatives that is must be helped to get started and kept going but 12 (2.2%)with serious signal but not having reached a situation of being a signal for developmental delays while 6(1.1%) with very serious indication of being a signal for developmental delays, in the fourth category 548 (98.2%) with not serious note in speech and/or language development through identification of colours, body parts and shapes, where 7 (1.3%) showing serious indication but not seem to be a signal for delays while 3(0.5%) with very serious indicating developmental delays and in last category which was expressive language in terms of vocabulary and sentences it was revealed that 550 (98.6%) showed not serious indication, 6 (1.1%) showing serious indication but not the extent to be called a signal for developmental delays and 2 (0.3%) with very serious indicating a signal for developmental delays. The researcher extended the analysis using the ANOVA test to check if there were variations between sex of preschoolers and global development delay cues through their interactions, where the results showed that $F(7,555) = 2.18$, $p = .44$ showing that there was no statistically significant difference between sex of preschoolers and delay cues meaning that sex of children for this case the preschoolers do not determine the cognitive-developmental delays. Not only that but also the same test was made to check the variation between the class level of preschoolers and cognitive developmental delay cues results showed that $F(3, 548) = 1.08$, $p = 0.36$ showing no significant difference, this is to say that class level of preschoolers does not determine the developmental delay cues. The results are summarized in Table 4 below.

Table4 : Cognitive developmental delays

Type of interaction In-class interactions	Partial SS	Df	MS	F	Sig.(p-value)
Sex of preschooler	1.6013	7	.2287	2.18	.44**
Class level	.0667	3	.0022	1.08	.36**
Total	1.6680	10	.2309		

(MSEA =.104, MSB =.0203, **p>.05 = statistically not significant)

However, the researcher made an out of class observation through peer-related interactions in three different developmental domains which were motor or physical, socio-emotional and behavioural to see whether there are any physical or motor delays by looking whether a child can perform simple tasks of his or her age such as tying shoes whereby it was observed that 477 (85.5%) generally were able to perform simple tasks including tying shoes but 81(14.5%) were not able to tie their shoes to the extent of never be able from which 74 (13.2%) whereby those with four (4) years and 7 (1.3%) with five (5) years. Not only that but also children were observed if there were able to hop using one leg for at least fifteen (15) seconds it was observed that 524 (93.9%) out of 558 were able to hop using one leg with the extent of always being able to, but 34 (6.1%) out 558 not be able among which 30 (5.4%) were those with four (4) years while 4 (0.7%) were those with five (5%) years. Additionally, the researcher was interested in observing if the preschoolers were able to make play dolls using locally available materials such as mud, results showed that 530 (95%) were able to make dolls using mud while 28 (5%) out of 558 were not able to make dolls to the extent of sometimes unless directed to do so, from which 24 (4.4%) aged four years and 4 (0.7%) aged five years. The observation was also made to check the signals for the social, emotional and behaviour delays in two types of interactions, inside and outside the classroom, it was observed that 530 (95%) never, 20 (3.6%) sometimes while 8 (1.4%) always shows the acts and state of being restless and unable to sit still. In the other aspect such as participating in discussion and ability to learn, communicate with others it was observed that 294 (52.7%) sometimes, 260 (46.6%) always and 4 (0.7%) never show the extent of actively participating and communicating with others. Moreover, 300 (53.8%) shows the extent of sometimes, 250 (44.8%) extent of being never and 8 (1.4%) always in the position of being reprimanded. Furthermore, another signal is that of showing prolonged tantrums and taking longer than others to calm down it was observed that 440 (78.9%) never show such behavior, 110 (19.7%) sometimes show it while 8 (1.4%) always shows this kind of behavior. The results are summarized in Table 5 below.

Table5 : Social, emotional and behavioral delay signals

Signal	Never	Extent Sometimes	Always
Acts restless is unable to sit still Participate actively in discussions (ability to learn, communicate and interact with others)	530 (95%) 4 (0.7%)	20 (3.6%) 294 (52.7%)	8 (1.4%) 260 (46.6%)
Needs reprimanded Prolonged tantrums and take longer than others to calm down	250 (44.8%) 440 (78.9%)	300 (53.8%) 110 (19.7%)	8 (1.4%) 8 (1.4%)

Apart from that the researcher also observed other kinds of socio-emotional behaviours related to delay signals such as being overly anxious for instance pulling hair, biting the hand, showing tense worries, tremble and furiously cry especially when provoked it was observed that only 8 (1.4%) out of 558 of

observed preschoolers showed this behaviour with the extent not being serious. The other type of behaviour was observed from 90 (16.1%) out of 558 is that one of being overly active such as being fidget jumping out of the seat, walking and running around classroom inappropriately or standing on the desk. Lastly 105 (18.8%) out of 558 showed aggressive behaviour to others or property such as kick, hit, bite, pinch, scratch, push, throw objects, spit at another, threaten, bully and destroy things. The researcher extended the analysis using the chi-square test to see if there was a statistical significant relationship between physical delays development cues and preschoolers age; it was revealed that x2 (2,n=540), p=.04 showing that there is a significant difference between the age of preschoolers and physical developmental delays with (phi=0.2) size effect. The researcher also used the same test using socio-emotional and behavioural delays with the sex of preschoolers results revealed that X2 (2,n=538), p=.01 showing statistical significance difference with (phi=0.35) size effect, as it was observed that females were much more emotionally affected as compared to males while males observed to be behavioural delayed. The results are summarized in Table 6 below.

Table6 : Developmental delay cues.

Measure	Df	Sig.(p-value)	Φ
Age and physical delay	2	.04***	.2
Sex and socio-emotional delay	2	.01***	.35

Where ***p< .05= statistically significant

Suggestions of appropriate measures to be taken for children who show development delay signals

In this objective, the researcher made an exploration to fifty-four (54) teachers who were directly involved in teaching those preschoolers to provide their suggestions on measures to be taken to those children who showed the development delay signals. Results showed that 29 (53.7%) suggested that early intervention should be made to children to include different specialists by focusing on developmental domains such as physical, cognitive and socio -emotional, 15 (27.8%) opined that children must be given support to be helped to depend on the type of the problem from a specific domain, 8 (14.8%) suggested that parents and caregivers should keep playing with children to socialize them, and lastly, 2 (3.7%) suggested that there must be the use of discipline without harshness.

Apart from that, one of the female teachers with eleven (11) years of working experience quoted saying. *"What I believe is that children do change as they interact with their fellow if the problem is not severe it won't take too long for them to cope with the environment especially in young ages in their first year of study so I encourage parents to bring children to preschool as soon as they get four years or even early than that as it will help them even if there is a problem can easily be detected as they interact"*

Discussion

Findings in this study signified that children at preschool age show similar cognitive characteristics and activities such as limited thought that is concentrating in one feature or aspect of an object or circumstance this is centration in thinking meaning that their memory capacity have their own way of reasoning, classification and solving different problems not in favour of gender or sex difference but there is a support of some individual differences and in connection with the age in performance, there are differences observed in physical or motor delays between children of different ages this is probably due differences in physical growth due to their age as from the fact that there is slight differences in fine and gross-motor skills, resulting into differences in

some activities for example making doll using mud and hoping using one leg whereby confidence, ability and independence differ as the child grow, however it must be kept in mind that same-age children may exhibit individual differences in their development, this seems to be contrary with the study by Palejwala & Fine (2015) that argued that the overall measurement shows that in early cognitive capabilities girls achieve higher than boys while it is in line with the study by Ertem et al. (2018) that children develop different skills at different rates because of individual differences are however the majority of them attain motor skills alongside their age but it is also revealed that mostly children achieve their developmental milestones in a significantly at different ages. The case of socio-emotional and behavioural delays shows that girls were assessed as having a high level of socio-emotional development than boys although, physical activity in general, was in favour of boys, who are more physically active than girls this is probably because boys are much interactive in the social environment as compared to girls where these differences may be a function of different socialisation processes in boys and girls which may be tailored in natural disparities in gender in terms of temperament or modified to existing socio-cultural pressures, the results concur with the study by Lisa et al. (2016) which argued that in terms of expression of emotional competencies, regulations and recognition girls are better than boys but in case of behavioural problems boys show greater levels of hyperactivity. Not only that, but also it concurs with the study by that, interactions seem to be highly emotional thus arousing both positive and negative abilities to regulate them and therefore they are critical at this stage in assuring competency in interactions during t his stage and for the later development of peer social competencies (Campbell, 2002; Tremblay, 2000; Schanke, 2021) Results indicate that more than fifty per cent of teachers opined that early intervention (EI) can lead to an appropriate measure since it shows the magnitude of the problem for the better solution in supporting the child so that they grow holistically, for example in cognitive and communication problem children can be helped with speech, language, eating and drinking skills, but also provided with clinical therapy in the case of medical help, on the other hand in physical development delay child can be helped with play, motor and self-help skills such as dressing and toileting but also parents and caregivers can contact with a local hospital for further diagnosis where it can also be suggested that in socio-emotional and behavioural problem it is important for children to interact with caregivers or parents and siblings to reduce the problem. On the other hand, less than thirty per cent of teachers' suggestions were based on the support to be given to children with problems depending on the specific domain this can help in the provision of an intensive diagnosis of children in a specific type of problem for specified help, furthermore, less than four per cent suggested on the use of discipline in a case the child misbehave this seem to be working especially in the state were parents or caregivers are sure of child developmental status and it has been done based on norms and standards of a given society, this was also highlighted that changes during development results from multidirectional interactions between factors which are biological and environmental influences such as relationships between parents and children, involvement in community activities and norms and standards of a given culture in a course of time (Shonkoff & Philips, 2000; Hunt, 2020).

Conclusion

The study described exploration of the global developmental delays cues in children through peer-related interactions among pre-schoolers in school environments wherein objective one, investigating if peer-related interactions provide any cues on global developmental delays. It was indicated that in both in-class and out of the class interaction showing that only below three and a half per cent (3.5%) of children were in very serious delays in cognitive domain especially in the case of difficulty in communication but showing no significant difference in sex and their class level. In the case of physical and motor delays not above 14.5% who showed no ability to perform simple tasks significantly with their age and lastly in the case of social-emotional and

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behavioural delays where only 1.4% of preschoolers always showed this kind of behavioural delays as they need reprimanded, acts restless that is unable to sit still and prolonged tantrums that take longer than others to calm down while 0.7% were never able to participate actively in discussions (ability to learn, communicate and interact with others) this goes with a significant difference with their age and sex. The second objective was on suggesting the appropriate measures to be taken for children who showed development delay signals the results revealed that, more than 50% of the respondents suggested that early intervention to those children with developmental delay signal is of much importance as it provides the magnitude of the problem for the better solution.

Recommendations

The study recommendations were categorised into a recommendation for actions and for further studies whereby recommendations for action were based on results from the study and that in objective one, peer-related interactions should be insisted from parent or caregivers to children even below school age for early stimulation in reducing the magnitude of delays. In objective two as suggested early intervention strategy parents and caregivers should be provided with guidelines from various experts as ways to identify the problem and its magnitude, the child has for reducing and or resolving the problem. Recommendation for further studies, another study can be a longitudinal study on developmental delay cues from the age of three to eight years. Not only that but also the larger sample from the survey can be used for generalisation.

Ethical consideration

This study adhered to ethical considerations where the researcher was officially permitted to research by given the clearance letter from the authority from the office of the Director Morogoro Municipal Council.

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