Safety and security in preschools: A challenge in informal settlements

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School safety is important in enhancing children's learning. It is defined as measures put in place by staff, parents, learners and other stakeholders. The measures are meant to minimise risk conditions that may cause accidents, bodily injury as well as emotional and psychological distress. Accidents, if not prevented, can cause disability or death, while emotional and psychological trauma can lead to lack of self-esteem which may result in poor performance in education. Therefore meaningful teaching and learning cannot happen in an environment that is not safe and secure for both learners and staff. This article presents findings of a study conducted in preschools in informal settlements in Nairobi County, Kenya, focusing on safety and security for children in preschools. A mixed methods approach involving concurrent qualitative and quantitative data collection procedures was utilised for the study, conducted in 54 preschools involving 54 head teachers/managers, 78 pre-school teachers and four officers in education in Nairobi City County. Findings revealed that government has endeavoured to come up with guidelines and minimum standards through various policies, but preschools in informal settlements are experiencing a myriad of challenges impacting negatively on children's learning. Among these are poor infrastructure, lack of play space and play equipment, congested classrooms and school compounds not fenced. In view of the challenges, it is recommended that county government in collaboration with other stakeholders in early childhood should come up with model preschools in informal settlements to create conducive learning environments. There is also a need for frequent inspection of preschools to ensure that safety and security standards are observed and implemented.

Introduction

School safety is defined as measures put in place by staff, parents, learners and other stakeholders to minimise or eliminate risk conditions or threats that may cause accidents, bodily injury as well as emotional and psychological distress (Republic of Kenya, 2008). Accidents if not prevented can cause disability or death, while emotional and psychological trauma can lead to lack of self-esteem leading to poor performance. Heinrich (1941) in his domino theory maintained that unsafe acts or unsafe conditions contribute to accidents or injury. He argued that physical unsuitability or improper physical environment contributes to an unsafe environment for people. According to him, management of institutions stands a better chance of enhancing safety in their institutions through proper supervision. Mwoma and Pillay (2016) in their study in a South African informal settlement, noted that having a conducive policy environment is key in ensuring that orphans and vulnerable children (OVC) can access basic education. They argued that, through a no fee policy in public primary schools in South Africa, OVC are able to access education. According to the Kenyan *Safety standards manual for schools* (Republic of Kenya, 2008), school safety is an integral component in children's learning. Meaningful teaching and learning cannot happen in an environment that is not safe and secure to both learners

and staff (Republic of Kenya, 2008). Hence providing a safe and secure learning environment is critical for facilitating learning.

The early years of a child's development provide a window of opportunity to lay a strong foundation for a child's life. During this period children make leaps in physical, motor, social-emotional, cognitive and language development (World Bank, 2010). Thus, ensuring that children in their early years are protected from unsafe conditions will enhance their holistic development. Neuroscience demonstrates the critical impact of early experiences in brain development. Providing proper health, nutrition and early stimulation in the early years also facilitate brain development and children's well-being. Early childhood care and education programs therefore contribute to good child development outcomes, setting the foundation for lifelong learning and helping to monitor the health and nutritional status of children in the early years of development (UNESCO, 2005). Exposure of children to negative conditions and experiences during early years negatively impact all aspects of children's lives. Consequently, this affects the social and economic development and human capital formation of a nation (Consultative Group on Early Childhood Care and Development, 2013).

School based health and nutrition programs have been identified as strategies for reducing health related problems likely to affect children's learning (FRESH (Focusing Resources on Effective School Health), 2013). Thus introducing health and nutrition services such as deworming and micronutrient supplementation could be simple, easy, and safe to administer by teachers. This could be geared towards improving children's health and nutritional status, especially for learners from disadvantaged backgrounds which will in turn boost their concentration and performance in learning. Mwoma and Pillay (2016) in their study revealed that although schools provided feeding programs, children from poor backgrounds lacked meals in their homes and therefore could come to school without taking breakfast, which impacted negatively on their concentration and learning.

Safe and secure school environment

A safe and secure learning environment is largely conceptualised as protection of children from physical harm, perceived as an adult responsibility to provide a safe physical environment for children's learning (Saltmarsh, Klopper & Barr, 2009). The national goal number eight of education in Kenya seeks to promote positive attitudes towards good health and environmental protection. Schools should thus be a place where children are protected from any form of danger, diseases, physical harm or injury. The school environment should have sufficient water and sanitary facilities with well-fixed structures to avoid causing any damage to the health and development of children. Exposure to hazards such as infectious diseases as a result of unsafe water supply, lack of handwashing facilities or unsanitary latrines may lead to infections in children (FRESH, 2013).

Clean water and sanitation help reinforce health and hygiene education in schools by allowing children to practise what they learn. A good sanitary environment has been recognised as one of the drivers of increased school attendance and retention among

children (FRESH, 2013). While this is possible in schools in middle and upper socio-economic environments, the case may be different for schools in informal settlements where poverty has taken a toll.

In ensuring that the health and safety of children are taken care of, a common framework for school health was agreed upon by the international agencies that participated in the World Education Forum held in Darkar 2000 (FRESH, 2013). The health framework aimed at implementing health programs to enhance enrolment and retention of children in schools, and promote knowledge and healthy behaviours that protect them from diseases (FRESH, 2013). Kenya in recognising the important role of good health in schools has made significant progress towards improving the health and education standards of school children by launching the *National School Health Policy* (Republic of Kenya, 2009). Article 53 of the constitution of Kenya also provides that every child has a right to basic nutrition, healthcare, protection and basic education (Republic of Kenya, 2010). Thus improved health for children implies safer and healthier lives for a better world.

Conducive school environments play a key role of promoting children's environmental health and safety. The National School Health Strategic Implementation Plan 2010-2015 focused on key thematic areas of improving school health and education. Among them are values and life skills, gender issues, child rights, child protection and responsibilities, special needs, disability and rehabilitation, water, sanitation and hygiene, nutrition, disease prevention and control, school infrastructure and environmental safety (Republic of Kenya, 2009). While all the thematic areas are critical in the welfare and health of children, the current study was limited to areas considered key in preschools in informal settlement, namely protection, water, sanitation and hygiene, school infrastructure and environmental safety.

Theoretical underpinning

This article is anchored on Heinrich's domino theory (1941). Heinrich came up with a series of five steps that leads to an accident which may cause injury. He likened the steps as dominoes. The first step according to Heinrich is the social environment characterised by recklessness, greed and bad temper, either inherited or acquired from the social environment. The second step is the fault person involving unpleasant manners such as ignorance, recklessness and bad temper. The third step is unsafe acts or unsafe conditions, which according to Heinrich are at the centre of sequences contributing to an accident. They are perceived as the most significant factors to cause an accident. The fourth step is the accident which is an undesirable and unwanted event that cause injury. The event may include a person falling from height and striking a person due to collapse of objects. Step five involve injury which is the consequences of suffering damage to one's body (Sabet, Aadal, Jamshidi & Rad, 2013).

According to Katsakiori, Sakellaropoulos and Manatakis (2009), Heinrich's revised domino theory brings on board the role of management in ensuring that safety measures are put in places of work to minimise accidents. They argue that planning, controlling,

organising and leading by management are among the strategies that can be utilised to prevent accidents from happening in their place of work. They further maintain that unsafe acts and conditions are defined as symptoms of root causes that originate from steps one and two above (Katsakiori et al., 2009, Sabet et al., 2013).

The remedy to prevent accidents and injury, therefore, lies in the hands of management who should ensure that people's well-being in their institutions is protected against unsafe acts and unsafe conditions (Katsakiori et al., 2009, Sabet et al., 2013). Unsafe acts and unsafe conditions are indications of management failure that may affect the physical and mental conditions of human resources. The domino theory is applicable to the school environment in the sense that managers and teachers should ensure that they eliminate conditions that may cause accidents and injury to children.

Why the study

Provision of early childhood education in Kenya for many years has been a shared responsibility between government, parents, communities and non-state actors. The non-state actors include private schools, complementary/non-formal schools and faith-based organisations (Nairobi City Council, 2014). With the promulgation of the constitution of Kenya in 2010, however, the responsibility of providing pre-primary education was moved to county governments with the national government retaining the roles of policy formulation, curriculum development and teacher training (Republic of Kenya, 2010). In order to produce globally competitive citizens as envisioned in *Vision 2030* the health and safety of children while in school is key in providing a proper foundation in children's health and education (Republic of Kenya, 2007).

Pre-schools in informal settlements which are the focus of this study refers to education centres that do not meet the requirement for registration as public or private schools. They offer alternatives for children who cannot access public preschools (Republic of Kenya, 2015). Nairobi City County Task Force's report of 2014 revealed that 61,440 children were enrolled in preschools attached to non-formal schools found in the informal settlements of Korogocho, Mathare, Kibera, Kawangware and Mukuru (Nairobi City County, 2014). The report further revealed that these preschools complement the efforts of county government in the provision of early childhood education. The report disclosed that in 2013 there were 300 preschools attached to non-formal schools in informal settlements, due to there being few public schools in the informal settlements. In addition the report showed that providers of complementary education have established coordination mechanisms to enhance professionalism in the sub-sector. However, the report does not adequately highlight the safety and security measures put in place in these centres to enhance children's health and well-being while in school. The current study therefore sought to find answers to the following question: What challenges are experienced by pre-schools in informal settlements in relation to safety and security of children?

Research method

The study employed a mixed methods approach involving concurrent qualitative and quantitative data collection procedures. This was to allow triangulation of data to be captured from different participants (Creswell, 2012; Tashakkori & Teddlie, 1998). A questionnaire, an interview schedule and an observation checklist were utilised to collect data. The questionnaire was administered to preschool teachers in the sampled schools, and head teachers/managers and education officers in Nairobi City County were interviewed. The observation checklist was used to determine the safety and security measures put in place in the sampled preschools.

Sampling and sample size

Purposive sampling was used to select Nairobi City County. All preschools attached to non-formal schools in informal settlements in the county and the head teachers/managers and teachers working in these preschools were purposively sampled. A sample size of 62 preschools from a total population of 204 pre-schools attached to non-formal schools were selected using systematic random sampling constituting 30% of the total number of preschools attached to non-formal schools. However, in the main study 54 preschools with an enrolment of 4035 children aged between three and six years participated in the study. The children were enrolled in baby class/day-care (1197 children), pre-primary one (1323 children) and pre-primary two (1485 children). Some of the centres sampled for the study had closed down. A total of 136 participants from the sampled preschools participated in the study. They comprised 78 preschool teachers (75.6 % having a certificate in early childhood education and 23.4 % having diploma in early childhood) out of 169 teachers in the 54 preschools. Fifty four head teachers and four education officers also participated in the study.

Study locale

The study was carried out in preschools attached to non-formal schools in informal settlements in Nairobi City County Kenya. The county was selected because it houses many informal settlements including; Kibera, Mathari, Mukuru, Dagoreti, and Kawangware. According to African Population and Health Research Center (APHRC) (2014), approximately 60-70% of Nairobi residents in 2012 were estimated to be living in impoverished areas. Nairobi slums like other slums in Sub-Saharan Africa are characterised by insecurity, extreme poverty and food insecurity, high population densities and poor drainage systems (APHRC, 2014; Hungi, Njagi, Wekulo & Ngware, 2017). Communities in slums have limited access to basic public services such as health, education and water. Dwelling structures in slums are inadequate and of poor quality. Sixty percent of learners residing in Nairobi informal settlements are enrolled in low cost private schools referred to as *Alternative Provision of Basic Education and Training* (APBET) (Hungi et al., 2017, Ngware & Oketch 2012, Ngware, Abuya, Admassu, Mutisya, Musyoka & Oketch, 2013). The schools are characterised by poor infrastructure, low levels of instructional resources and large proportions of untrained teachers (Hungi et al., 2017, Ngware & Oketch 2012, Ngware et al., 2013).

Induction of research team, pre-testing research tools and ethical clearance

The study was conducted between May and July 2016, beginning with inducting the research team into the research processes and pretesting the research tools.

Induction of research team
The research team comprised a principal investigator, two co-principal investigators, and seven research assistants (who were postgraduate students). Postgraduate students were involved to give them an opportunity to acquire research skills through hands on experience. A one-day induction workshop was organised to introduce the research team to the purpose of the study and tools to be utilised for data collection. Issues on safety and security of children in preschools in informal settlements were also discussed to broaden their thinking and sensitise the research team on the research context. The overall process and tools to be used were also addressed.

Pre-testing of research tools
Before data collection, the research team pretested the tools in two preschools in Kasarani sub-county to determine their effectiveness and eliminate errors that could occur during data collection. After pretesting the instruments, debriefing and feedback sessions were held to analyse the responses obtained and the field observations. Results were then used to improve the tools in readiness for actual data collection.

Ethical clearance
Before embarking on the process of collecting data the research team sought permission from Kenyatta University Research Ethics Board. Permission was also obtained from the National Commission for Science, Technology and Innovation as required. In order to conduct the study in preschools attached to non-formal schools, permission was also sought from Nairobi City County. Further consent of the management of the sampled preschools and all the other participants who participated in the study was obtained. To enhance confidentiality, codes have been used for the sampled schools and participants to conceal their identities.

Verbatim information from each participant is given identifiers indicating who said what and from different schools without using actual names. For instance codes are given to indicate who the participant is such as head teacher is given a code HT, while a teacher is given a code Tchr. For the education officers, initials depicting their titles are utilised such as SCEO (Sub-County Education Officer), CCAS (County Chief Advisor of Schools), and (CDOE) County Director of Education.

Data collection procedures and analysis

The research question addressed in this study was: What challenges are experienced by pre-schools in informal settlements in relation to safety and security of children? Various data collection tools were utilised to capture data for the study including key informant interviews, observation checklists and questionnaire.

Key informant interviews
These were conducted in English with preschool head teachers/managers, and County and Sub-County education officers in charge of early childhood. The focus was on the challenges experienced in relation to safety and security of children.

Observation check list
This captured information on the status of infrastructure, environmental safety, water, sanitation and hygiene, and feeding programs in preschools.

Questionnaire
This was used to obtain information from teachers on safety and security measures in the preschools to enhance health and wellbeing of children. It was also used to capture information on the challenges encountered from the teachers' point of view.

Descriptive statistics
Quantitative data is presented in frequencies and percentages. Field notes from qualitative data were transcribed and made available in *MS Word* format. Verbatim information from different participants was categorised into themes to generate meanings. Analysis and presentation of qualitative data was done alongside the quantitative data to triangulate responses from different participants.

Results and discussions

Safety and security challenges in pre-schools in informal settlements

The study sought to explore the challenges experienced in preschools attached to non-formal schools in informal settlements. Informal settlements are usually inhabited by people of low socio-economic status. Due to this background, preschools in informal settlements are bound to experience a myriad of challenges. The current study sought to establish the challenges in relation to safety and security of children. The challenges as presented in this section focuses on dropping and picking children in preschool, physical facilities, outdoor play space and play equipment. Others include safety of school compound, availability of firefighting equipment and first aid kits, water and sanitation as well as a school feeding program.

Challenges in dropping off and picking up children

Children's security and safety while going to and coming from school is of critical importance. This requires children to be escorted to and from school by an adult, or by older siblings. The early childhood development service standard guidelines of 2006 provides guidelines with regard to children's safety and protection that requires preschools to have a list of emergency contacts for parents/ guardians who drop and pick children. It further requires preschools to ensure that children are escorted to and from preschools with adults or older siblings above 12 years of age. According to the guidelines, parents/

guardians should provide identification documents whenever picking up children from school (Republic of Kenya, 2006).

In this study however, it was observed that some children came to school alone and others left on their own or in the company of other younger children. This exposed children to dangers of being hit by speeding motorcyclists, kidnapping, bullying by older children, among other dangers. Some children also were reported to be picked up very late or when they got home they found no one at home to look after them. In reporting this challenge, some teachers had this to say:

> The small children who go home by themselves sometimes are attacked by the big students, they are beaten and they fear to report them to teachers or parents (Tchr., ABC).
> Being next to the road, some children are not picked up hence face difficulty in crossing the road alone (Tchr., Connect).
> Children come to school by themselves and go back for lunch alone hence causing insecurity for the young children (Tchr., Brilliant).
> Time for departure is unregulated. Sometimes the parents delay to pick their children and end up leaving school late (Tchr., SCD).

Some children were reported to be coming to school or going home alone. One head teacher reported this by saying: "Some children come to school by themselves (HT, Salem)". Findings from the questionnaire revealed that 37 (68.5%) schools had a list of contacts identifying who should pick up and drop children, while the rest of the schools did not have. Twenty (25.6%) of the teachers confirmed this in the questionnaire by revealing that preschool children in their preschools come to school and go home unaccompanied. This means that in case of a problem, teachers could not easily reach out to parents or guardians. It is apparent that there are safety and security challenges for young children in relation to being dropped and picked up at preschools in informal schools.

Challenges in physical facilities

Physical infrastructure such as classrooms, offices, toilets, kitchen, water tanks, playground, and equipment among others should be appropriate, adequate and properly located to avoid any risks to users (Republic of Kenya, 2008). The early childhood development service standards guidelines 2006 outlines various standards that should be observed when constructing classrooms for preschool children. Among them is to have a classroom measuring 8 by 6 metres accommodating a maximum of 25 children. The classroom should have proper roofing, windows, doors and flooring as well as adequate ventilation. The chairs should be child sized and age appropriate (Republic of Kenya, 2006).

Findings from the current study, however, revealed that physical facilities in some preschools were not conducive to enhancing learning. Some classrooms lacked doors; not enough space leading to children being squeezed in small rooms; poor furniture; and earthen floors. In reporting these challenges, teachers had this to say:

> Our school lacks doors in the classrooms (Tchr., Mercycare).
> This school lacks enough space in the classroom because the children are too many and cannot even move freely inside the class (Tchr., Karuna).
> The biggest challenges we are experiencing are the classroom furniture which are not up to standard and also are few (Tchr. Destiny).
> Our earthen floor can lead to increased incidents of injuries and also spread of diseases due to dust (Tchr., Uhuru).

It is clear from the findings that physical facilities did not conform to the standards outlined in the national early childhood service standards of 2006. The standards are also endorsed by the safety standard manual for schools in Kenya requiring schools to ensure that classrooms, offices, kitchens, toilets and other physical structures are clean and well maintained, safe, and properly utilised (Republic of Kenya, 2008).

Challenges in outdoor play space and equipment

Outdoor space is critical in providing children with opportunities to play. To enhance proper utilisation, the space should be large enough to accommodate the number of children in the preschool, so that children can play and run freely without hurting each other. The early childhood development services standards guidelines 2006 outlines various standards related to children's outdoor play space, as well as play and learning equipment. According to the standards, outdoor play should be large enough to accommodate the number of children to play and run around. The surface of the play area should be free from sharp objects, harmful plants and discarded materials and equipment. The compound should be fenced and have a lockable gate to prevent children from sneaking out of school without teacher's notice, as well as for the security of children while in school. Preschools are further required to have a composite pit to be used for disposing waste materials (Republic of Kenya, 2006). According to the service standards guidelines, play and learning equipment should be age appropriate, child size and developmentally appropriate. They should be adequate, safe and securely fixed to protect children from injury.

In interrogating the safety and appropriateness of play space and equipment, findings from interviews revealed that some schools did not have playgrounds at all and in those that had playgrounds, the space was inadequate for the number of children. Participants from different schools reported this by saying:

> The environment is not conducive since we lack enough playground for outdoor activities … (HT, Destiny).
> The school doesn't have its own compound it's in a rented ground (Tchr., Glory).
> The playground is not enough to accommodate the number of children (HT, Grape Yard).
> In our school the play space is too small, in fact it is inadequate. Children scramble for space and others don't get any chance to play in that space (HT, Gifted).

Findings from observations and teacher questionnaire on play space revealed that there was no enough space for children to run around and play in 30 (55.6%) schools. In 50 %

of the schools the play area was not safe for children. Forty four (56.4%) teachers indicated that their schools did not have a composite pit to dispose waste materials. The findings accord with those by Ndani (2008) who revealed that Kenyan pre-schools have learner unfriendly physical environments as 55% of the schools in her study were below average. This clearly shows that the play environment in preschools is not conducive for children's play.

According to the early childhood development (ECD) service standard guidelines 2006 a good outdoor play ground should be safe; free from sharp objects and harmful plants; no discarded materials and equipment. The playground should also be well maintained. Results from interviews with head teachers further revealed that in some schools this was not the case as two head teachers had this to say:

> Our field is too stony and children can get hurt when playing (Tchr. Gifted).
> We have poor swings and sharp objects in the compound which can hurt children while playing (Tchr. Kibera).

Examining the appropriateness of play equipment for children's use, results indicated that in 45 (83.3%) schools the equipment were not well maintained. Forty eight (61.5%) teachers indicated that their schools did not have age appropriate play equipment for children to use. Thirty (38.5%) teachers confirmed that the play equipment were not safe for children's use. These findings are consistent with findings by Mugo (2009) who noted that the greatest contributor of accidents in preschools was poor conditions of play facilities and their wrong use, as well as the poor conditions of classroom learning facilities and their wrong use.

Challenges with school compounds

Fencing the school compound is key in ensuring that children do not run in and out of school without the teachers' knowledge. This will ensure security of children and having a security officer to man the gate may be necessary. School grounds, according to the Kenya safety standards manual for schools, refers to the entire enclosure used by the school for learning, playing games or sports (Republic of Kenya, 2008). The grounds should be large enough to accommodate physical infrastructure including classrooms, offices, latrines, playing grounds and walkaways. Indicators of safe school grounds include properly reinforced fences with well fitted lockable gates; well maintained and clean learning rooms; and well maintained and clean desks and chairs in classrooms (Republic of Kenya, 2008).

Although 66.7% of the schools visited were fenced, findings revealed that almost quarter (25.9%) of the schools had compounds not fenced. Even at the schools that were fenced, the materials used for fencing were of poor quality which could not provide the security needed, while others posed dangers as they were made up of rusty iron sheets. Other schools visited did not have a gate and even those that were fenced, the fence was broken and children could easily get out of school and come in through any part of the fence. Head teachers and teachers revealed this by saying:

> As you can see there is no fence around the school (HT Excellent).
> We have no school gate but during break time we put officials on duty to provide security for children especially the little ones (HT Excellent).
> The school compound has no fence and gate to provide security to children (Tchr., Excellent).
> Since there is no watchman the kids may sneak out of school without teachers' recognizing (Tchr., Charity).
> Our perimeter wall (fence) has gaps and so without proper supervision, the learners can easily get out of the compound (Tchr., Gifted).

It is apparent from these findings that in some schools there was no fence, hence not conducive to providing children with the safety and security required while in school. School managers should therefore ensure that they implement safety and security standards as outlined in various government documents cited in this article.

Challenges with firefighting equipment and first aid kits

Children's safety while in school is of key importance. Ensuring that safety equipment such as firefighting and first aid kits are available is critical in any learning institution. Other safety measures would include having buckets full of sand, blankets or even water available for use in case of fire outbreak. The early childhood service standard guidelines 2006 requires each preschool to have fire extinguishers and buckets full of sand, blankets and water as a way of responding to fire outbreak in preschools. It further requires preschools to have first aid kits with required drugs, and to train members of staff on how to administer first aid to children in case of injury (Republic of Kenya, 2006).

However, findings in this study revealed that there was no firefighting equipment in 44 (81.5%) schools and that even in the 10 (18.5%) schools that had them, the equipment was not functional and teachers did not know how to operate it. In reporting this, teachers had this to say:

> The school does not have firefighting equipment thus in case of fire outbreak children and members of staff will be in danger (HT, Ujamaa).
> Our school lacks a fire extinguisher (HT, Vigil).
> We do not have any form of training on how to use the fire extinguisher in case of fire outbreak we cannot be able to use it (HT, Hilltops).

In relation to first aid kits, results revealed that first aid kits were not available in 28 (51.9%) schools. However, in the 48.1% schools that had the kits, they did not have drugs and teachers had not been trained on how to provide first aid services to children. Some teachers revealed this by saying:

> If only, we had a good first aid kit and a trained teacher on the same, it could help children when they get hurt. We also don't have enough first aid materials for use (Tchr., Excellent).
> There is no first aid kit thus making it hard in giving first aid to children who are injured within the school (Tchr., Ujamaa). When a child is sick and the parents are not at

> home, it is difficult for the teacher to assist the child because there is no medicine in the first aid kit (Tchr., Excellent).

While firefighting equipment and first aid kits are critical in learning institutions, it was apparent from the current study that this equipment was not available in the majority of schools and that in schools that had equipment, teachers were not trained on how to use it. In the worst cases, some first aid kits did not have drugs. It is imperative therefore that inspection as well as supervision of schools in relation to children's safety be provided.

Challenges concerning water and sanitation

Water, sanitation and hygiene are critical in promoting a conducive learning environment. Thus improving water, sanitation and hygiene in schools will enhance child health, attendance and retention, as well as performance. This will also help to reduce water borne and sanitation related diseases such as cholera, worms, skin infection and diarrhea (Republic of Kenya, 2011). The early childhood development services standards guidelines of 2006 requires preschools to have separate toilets for boys and girls at a ratio of 1:25, specially designed for young children. It further requires preschools to have safe water for use in the kitchens, for play activities, drinking and washing hands (Republic of Kenya, 2006).

Findings from the current study revealed that although some schools had water in the school, water storage was a major challenge in many preschools as there were no storage facilities and space. One head teacher reported this by saying,

> Water storage is a major challenge in our school. We don't have tanks to store enough water so we use Jerri cans which are also not enough (HT, Shollah Comty).

It is apparent from these sentiments that water storage in preschools in informal settlements could be a challenge that requires urgent attention to ensure that preschools have safe water for use. Findings from observations further revealed that there were no handwashing stations in 26 out of 54 schools.

Results on availability of toilets revealed that some schools did not have toilets, compelling children to use community toilets near the school. In reporting this, head teachers from two schools had this to say:

> We do not have toilets for our school but we use community toilets (HT, Abundant).
> Toilets are not enough in our school. We are planning to build another toilet but the main challenge is that the premises we are using are rented so we are consulting with our landlord (HT, Amson).

These findings are consistent with those reported by Reeves, Priest and Poore (2012), who established in their study that in 24 schools toilet facilities were deficient in some way for children's use, suggesting that a significant number of New Zealand children did not have access to high quality hygiene facilities at school. Owano (1986) noted that 35.5% of the preschools operated without a toilet facility and 67.7% of the schools had toilets that were

not adequate for children's use. Good health and sanitation are critical for effective learning. Schools should therefore have a legal and moral responsibility to ensure that learners have a safe sanitary and health environment (Republic of Kenya, 2008).

Challenges for school feeding programs

The early childhood development services standards guidelines 2006 requires preschools to provide children meals or snacks, especially enriched porridge at break time. Full day preschools are required to provide children's lunches with a balanced diet. In the same vein, food handlers are required to have valid medical certificates from a recognised government hospital. The guidelines further require food handlers to cover their hair and put on an apron to ensure proper hygiene (Republic of Kenya, 2006).

Sadly, some schools reported not having a school feeding program, despite this being a requirement for all preschools. Findings further revealed that some children would come to school without a meal, due to their parents' low socio-economic status. The findings are consistent with findings from Mwoma and Pillay's (2015) study which revealed that orphans and vulnerable children from disadvantaged backgrounds in Soweto, South Africa, lacked food at home and in schools, due to poverty, a situation that needed attention at the family and school level (Mwoma & Pillay 2015). Teachers in the current study further reported that some children came to school without having had a morning meal, due to financial constraints upon their parents. Head teachers from different schools reported this by saying:

> It would be irrational to introduce a school feeding program without any sponsorship. Parents normally find it difficult and we cannot come up with a feeding program leave alone paying school fees amounting to Ksh. 300 (HT, Super).
> In my school, we do not have a school feeding program (HT, BRE).
> No school feeding program in our school, children go home to eat, while others are given money to buy food from the local food joints (HT, Excellent).

This finding is consistent with findings from Mwoma and Pillay's (2015) study conducted in Soweto South Africa, which revealed that children from disadvantaged background lacked meals in their homes and therefore could come to school without having breakfast. Allowing children to carry meals from home or to buy meals from food vendors in schools is compromising children's safety and security in school, as well as exposing them into health risks associated with poor hygiene in handling food.

In relation to qualifications of food handlers, findings indicated that in some schools, food handlers did not have certificates, while in others, teachers prepared food for children and did not have medical certificates to handle food. Head teachers reported this by saying:

> Our cook has not gotten a certificate but we have instructed her to get one (HT Gifted).
> Our cook has not renewed her medical certificate for this year. The one she has is expired (HT Hilltop).
> Teachers prepare food for children and therefore if blame comes it is on the teachers (HT Mercy Care).

> The teachers who prepare food do not have medical certificates (HT Mercy Care).

Government policy on health in schools requires institutions to have medically certified cooks or cooks who possess a health certificate from a recognised institution. However, it was apparent from the current study that some schools providing feeding programs did not observe this requirement. Instead they engaged teachers or cooks who did not have a medical clearance from a relevant institution, which is likely to pose a health risk to children. Furthermore, engaging teachers to cook for children will reduce their time spent on teaching children, as well as leaving children unattended, which further complicate children's safety in school.

Conclusions

Preschools in informal settlements have over the years played a critical role in providing children from disadvantaged backgrounds with education. However due to the low income levels of inhabitants in urban slums, the schools are not able to provide safe and secure environments for children's learning. Findings from the study therefore can be utilised to sensitise postgraduate students, teachers, school leadership, teacher educators, government officials and politicians to the challenges experienced by preschools in informal settlements.

Findings revealed that the Nairobi City County government has not put adequate measures in place to ensure that preschools in informal settlements have conducive learning environments. It was also apparent that the schools experienced a myriad of challenges related to children's safety and security including poor school environment; unfenced compounds; and children going to school unaccompanied by adults thus exposing them to the dangers of being bullied by older children. The children are also exposed to the risk of being exposed to accidents by motorists. Other challenges are related to lack of feeding programs in some schools; lack of handwashing stations or facilities; lack of outdoor play space; and a lack of or poorly maintained play equipment.

To mitigate the challenges, it is imperative that county government, communities and schools have a critical role to ensure that children learning in preschools are safe and secure while in school and at home. County government should therefore come up with guidelines requiring preschools in informal settlements to adopt measures to ensure that children are learning in conducive and child friendly environments.

Recommendations

Pre-primary education being one of the devolved functions to county government, there is a need for Nairobi City County in collaboration with other actors in early childhood development to come up with model pre-primary schools in informal settlements. The schools will act as centres of excellence providing safe, secure and conducive learning environments for children.

Nairobi City County Government in collaboration with stakeholders in early childhood development should develop measures for ensuring that preschools in informal settlements implement the guidelines and standards set by government through various policies and guidelines by doing the following:

- Collaborating with communities to come up with facilities that are appropriate for young children such as, spacious classrooms, well ventilated, and child sized chairs.
- Ensuring that schools erect fences around their compound to protect children from sneaking out of school and preventing unauthorised strangers from accessing the school.
- Encouraging schools to use public facilities in the neighbourhood for children's play
- Introducing school-based feeding programs in preschools and discouraging schools from allowing children to buy food from food vendors outside the schools, as this may endanger children's health.
- Supporting preschools in informal settlements to have clean water and proper sanitation facilities to enhance hygiene in the schools. The support from stakeholders will also help preschools acquire enough water storage facilities to ensure availability of water for use in their schools at all times.
- Supporting preschools in informal settlements to acquire firefighting equipment and first aid kits and sponsor training of staff on how to use the equipment to enhance children's safety and security while in school.

Future studies may focus on whether children are taught about the safety measures to be observed while in school and at home. Other areas of focus may include the role of parents and communities in enhancing safety and security of children in informal settlement. Who has hired teachers working in preschools in informal settlement could also be an area of interest for future research.

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