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RESEARCH ARTICLE



## Urban planning policies and children: an assessment of the outdoor environment suitability of kindergartens in East Jerusalem

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### ABSTRACT

This article undertakes a physical assessment of the outdoor environment of Israeli-administered kindergartens in East Jerusalem. It investigates their suitability to accommodate the proper development and growth of the Palestinian children who use them. Due to Israeli-imposed policies and laws and the lack of proper urban planning, scope for Palestinian growth and expansion in East Jerusalem is limited. This has resulted in a shortage of spaces, poor living conditions, and a lack of adequate facilities, including kindergartens. This assessment of 47 kindergartens' outdoor environments, along with interviews with 9 teachers, shows that the spaces allocated for children in kindergarten playgrounds are small and do not meet the standards required to allow free play. Although the kindergartens studied are administered and licensed by Israeli laws and standards, the results show that the conditions in them do not provide safety, privacy, diverse types of play equipment, and the natural surroundings important for an outdoor play environment conducive to children's development and learning.

### KEYWORDS

East Jerusalem; kindergartens; outdoor environment; children well-being; suitability

Studies related to education in general are essential to social wellbeing, but especially so in the contexts of occupations and contested rule. This is because education is often targeted by colonisers and occupiers as a means to weaken occupied societies and their future generations, as has been shown in the case of Palestine (see Jensen 1984, Kimmerling 2006). To complicate matters, projects that demand data collection and which build on the gathering of information in society, which are essential for future, more theoretical or overarching studies, often encounter social, cultural, legal or state barriers to research. As such, this study highlights the importance of education that is affected by the dynamics of political conflicts, especially early childhood education.

Early childhood years are important for the development of children into healthy adulthood, including their cognitive, physical, social and emotional development (Shonkoff and Phillips 2000). Factors influencing this include physiology, family, parental practices and interaction with the child, and environmental factors. The latter include safety, crime, accessibility to kindergartens, and opportunities created through recreational activities (Shonkoff and Phillips 2000, Hertzman and Boyce 2010, Hertzman 2013). Evidence is mounting for the influences of the built and natural environment on healthy development and growth for children (Christian *et al.* 2015), including kindergarten outdoor environments (Ihmeideh and Al-Qaryouti 2016), where children spend a large amount of time and explore free play. However, in areas affected by poverty, wars and conflict, spaces allowing free and safe play are usually lacking, and this has a negative impact on children's health and development. The lack of such spaces is associated with problems such as obesity

(Kimbrow *et al.* 2011) and cognitive, social and emotional issues (Barnett 1990), as well as depriving children of self-exploration and imaginative play (Cosco 2007). As evidence is growing in relation to the benefits of outdoor exposure, it becomes evident that proximity to parks and green open spaces within the learning environment impacts strongly on the development of children (Taylor *et al.* 1998, Fjortoft and Sageie 2000, Aarts *et al.* 2010). These opportunities become even more limited in contested urban areas such as East Jerusalem. The lack of open public spaces and parks in the city, as a result of the Israeli settler-colonial urban planning strategies that do not provide public facilities for Palestinians, make it even more essential for the outdoor environment of kindergartens to provide proper play options for children. However, a majority of the kindergartens (pre-schools for children aged between 3 and 5.9 years) attended by Palestinian children and administrated by the Israeli municipality are located in spaces that were not originally built for such purposes. The result is that the limited spaces do not cater for their needs or provide a proper and safe outdoor environment suitable for the growth and development of children.

While national and international studies about the deficit of public facilities in East Jerusalem continue to be carried out, few have focused on the implication of Israeli-administered kindergartens and their suitability for the children attending them. Several studies, including humanitarian reports, have analysed and addressed the issue of settler-colonial planning in East Jerusalem and its effect on the well-being of Palestinians. A World Health Organization (2019) report discusses Israeli policies and their impact on health access. Other scholars have studied health-related issues in Palestine in terms of policy development (Hamdan and Defever 2002), efficiency (Sultan and Crispim 2018) and inequalities related to healthcare services (Abu-Zaineh *et al.* 2011). However, the available research has not examined the appropriateness of the built environment in relation to children's health and well-being, in particular outdoor environments in kindergartens, which are important in providing the setting for children to play freely. This study thus investigates the suitability of the outdoor environment of Israeli-administered kindergartens in East Jerusalem for the well-being, development and growth of Palestinian children. For this article, a physical assessment of 47 kindergartens' outdoor environments was carried out to see whether they meet the conditions and standards required for children's well-being, and this primary research is discussed in relation to the existing literature on the subject.

## Literature

### *Early childhood learning environment*

Human growth is a process built on building abilities that enable autonomy over dependency. Integrated development in children includes development of communication, self-help, and physical, socio-emotional and cognitive properties, within an environment that is comforting, harmonious and rich in experiences (Yoshikawa *et al.* 2013). In addition to these, gross-motor development is particularly associated with outdoor spaces (Gray *et al.* 2015), and growing evidence demonstrates its importance as part of the learning environment. Studies show how children are particularly sensitive to 'good' and 'bad' environmental influences during their development (Anning *et al.* 2007). Love *et al.* (2005) highlight that learning environments with higher quality are related to social, behavioural and cognitive development. The USA-based National Association for the Education of Young Children, for instance, calls for improvement and investment in quality kindergarten education by focusing on the learning environment (NAEYC 2020), and the same organisation's Developmentally Appropriate Practices report aims to develop teaching and learning in early childhood education (2020). These practices refer to principles that provide strategies related to the environment, content, materials and activities that can help children to develop individually (NAEYC 2020).

Other scholars have also related children's learning outcomes to the quality of the environment and play experience. Play allows children to develop emotional responses, expressing and managing feelings and interpersonal skills and creating a sense of well-being. Experts also agree that play

facilitates the development of social, cognitive, motor and linguistic skills (language acquisition) in children (Bjorklund and Gardiner 2011, Fisher *et al.* 2011, Lynch 2015). This includes an understanding of numeracy concepts, experimenting with materials and ideas about the world, and understanding the physical and social worlds (Boulton 2005, Fountaine *et al.* 2011). Play also helps children gain independence by exploring and testing new abilities through controlling their body and the environment (Hindawi 2003). Interactive play with other children helps to teach cooperation, problem-solving skills and sharing, and group work (Anderson-McNamee and Bailey 2010).

A well-designed environment can offer opportunities to explore, interact with peers, enhance self-confidence and improve social skills. Several studies confirm that exposure to sun and nature must also be flexible to fulfil various requirements and tasks. Outdoor play and increased physical activity can help children in attaining healthier bodies (Ansari *et al.* 2015). Research has also established the positive association between outdoor play and academic achievement (Mirrahimi *et al.* 2011).

Outdoor playing facilities can also impact upon the incidence of illness, with a decreased risk of infectious diseases. Pica and Bouvier (2012) point out that outdoor and natural spaces have fewer surfaces that are shared amongst children, and airborne viruses are less likely to be inhaled and spread. The physical aspects of the learning environment should be carefully considered in relation to values, behaviour and culture (Sanoff *et al.* 2000). Outdoor playgrounds need to be safe and well-designed to attract children and help enhance their development and learning (Milteer and Ginsburg 2012). In spite of the growing evidence and international conventions on children's rights (see UNICEF Preamble 1989), many around the world continue to suffer violations of these rights and are denied protection and the provision of basic opportunities.

### **Urban planning policies in East Jerusalem**

Jerusalem was divided in 1948 into an Israeli-ruled west and a Jordanian-ruled east, along with the West Bank. The east was then occupied by Israel in 1967. During these periods large-scale forced eviction and displacement of Palestinians took place, who then became refugees in camps in neighbouring countries (Khalidi 1992). Although Jerusalem was physically united, Palestinians and Israelis lead separate lives. Palestinians are regarded as 'permanent residents' with Israeli identity cards, and are not considered citizens, which does not allow them to participate in governmental and constitutional voting and election processes. Conversely, Palestinian Jerusalemites consider Israel to be an illegitimate authority, leading to a vacuum in leadership (Latendresse 1995).

Many laws related to land ownership and planning are put in place to serve Israeli agendas and hinder Palestinian development (Coon 1992). Municipal boundaries were imposed in the city that follow settler-colonial strategies which aim to limit the Palestinian demographic presence and increase the Israeli population, so that Palestinians do not exceed one-third (27%) of the total population (Yiftachel 1998, Bollens 1999). These strategies are enforced through laws regarding the legal status of Palestinians in the city, and also through neglect. Urban planning is used as a tool and strategy to discriminate against Palestinians and to restrict their ability to build and grow, in favour of better provision to Israelis in areas such as urban services, housing construction and economic development (Bollens 1999). Palestinian Jerusalemites are obliged to live within the municipality-defined boundaries, while the Israeli Ministry of Interior enforces the 'centre of life policy' that can revoke a Palestinian's residency, welfare, health rights and entry to the city if they are proven to have spent a prolonged period outside these boundaries. This is done by requesting evidence of ongoing residency such as tax, electricity, and water receipts (Tabar 2010). This law was enforced following the erection of the Separation Wall in 2002 to divide Jerusalem from the West Bank, and the policy applies to Palestinian Jerusalemites only. Such restrictive policies have a detrimental effect on living conditions in East Jerusalem. Around 35% of the land annexed in East Jerusalem has been confiscated, and is used to construct Israeli-only settlement colonies, while Palestinians are left with only 13% to live and grow (B'tselem 2018). Palestinian built-up areas comprise 22% of

the land, and are surrounded by large open spaces where construction is prohibited. This is left unplanned and serves as future territory for the expansion of the Israeli settlements (Kaminker 1997).

Limitations are further enforced by the municipality, which avoids drawing up the detailed plans that are a prerequisite to obtaining building permits (B'tselem 2018). This means that it is too complicated, vague and expensive to apply for permits, so many Palestinians tend to build without permits to meet the needs of growing families. It is estimated that around 30% of the structures in East Jerusalem are built without permits (OCHAoPt 2012). As a result, Palestinians receive high fines for building without permits, which usually ends in forced demolition. The Palestinian Central Bureau of Statistics reports that 88 buildings were demolished by the Israeli authorities in the Jerusalem governorate in 2016 (PCBS 2017), making a total of 730 demolished dwellings between 2004 and September 2017 (B'tselem 2018). Also, when Palestinians are granted building permits the build ratio is in the range of 50–70%, while Israeli settlements are given percentages that range between 120–200% (Margalit 2014). This creates a housing crisis that leads to poor living conditions and deprives Palestinians of recreational open spaces like parks and playgrounds. Although Palestinians pay taxes similar to Israelis the municipality does not provide the general services and infrastructure investment that should result, such as roads, pavements, sewage and water systems, frequent collection of garbage, cultural institutions, public and recreational open spaces, and schools. The shortage in the number of classrooms in East Jerusalem leads to high rates of young people dropping out of school at the age of 12 (Mansour 2018).

While the literature on the limitations of the Israeli policy and laws are widely studied and reported, none have addressed the implications of the poor living conditions, limited expansion and development restrictions for the suitability of kindergartens administered and licensed by the Israeli municipality. This article seeks to fill this gap.

### *The education sector in Palestine*

Children in Palestine are subject to death, injuries and psychological trauma due to the conflict, with the effects often long-lasting or permanent. Children are targeted directly and indirectly through war, imprisonment, violence and education. According to 2019 report by the Palestinian Ministry of Education (MOE 2019), 2094 children had been killed since 2000 and 8000 imprisoned. Although the focus of this article is East Jerusalem, where the educational system, including kindergartens, is under Israeli administration, education in the rest of Palestine, including the West Bank and Gaza, is also affected by the occupation. Despite official Palestinian National Authority control of the education system in these areas, in terms of administration and curriculums, Israel has exclusive control in Area C. According to the planning division following the Oslo Accords between Israel and the PLO, Area C is under total control by Israel, although it is inhabited by Palestinians and comprises around 60 per cent of the West Bank. Here, Palestinians are not allocated building permits and the development of basic services including the education sector is thus obstructed. According to the United Nations Office for the Coordination of Humanitarian Affairs, more than a third of residential areas in Area C (189 out of 532) do not have a primary school, forcing children to travel long distances to reach the nearest schools, sometimes on foot (OCHAoPt 2017). In some areas, children have to pass through Israeli-controlled military checkpoints or are harassed by Israeli settlers. This has led many families to withdraw their children from schools, especially girls (OCHAoPt 2017). Early childhood education is affected too, with only one-third of Palestinian children aged 4 and 5 enrolled in pre-school education (ANERA 2022).

Although many NGO and governmental reports do not focus directly on the physical environment of kindergartens and schools in detail, the general situation created by the occupation is reported to have affected children and/or presents the risk that children in the West Bank will develop serious mental health issues (UNICEF 2019). Palestinian children face high levels of violence in schools and in their communities, including psychological, physical and sexual violence, whilst also being exposed to the violence of interactions with Israeli soldiers and settlers (UNICEF 2019).

Violation of children's rights by Israel takes different forms, tactics and strategies that displace children from humanity and childhood in an act of 'unchilding' (Shalhoub-Kevorkian 2019). Children are subjected to limited welfare access and fewer educational opportunities, whilst educational systems are systematically targeted through the physical destruction and forced entry of schools, arrests, placing of children under home arrest, restriction on movement through temporary and permanent checkpoints, with associated delays for children and teachers and exposure to checking their school bags and bodies, as well as to exposing them to tear-gas grenades, which can cause severe health complications near clash points (Kovner and Shalhoub-Kevorkian 2017). Besides this, Area C school and kindergarten buildings are constantly under threat of demolition by Israeli authorities: according to the Norwegian Refugee Council, around 57 schools are under threat in the occupied West Bank, affecting access to education for 6,500 students (NRC 2022).

### **Education sector in East Jerusalem**

Within Palestinian society, 17% of the population are children between the age of 0–8 years (around 800,000) (MOEHE 2017). They face multiple problems related to health, education and social protection. Humanitarian organisations have called attention to the deficient and incomplete care among children through effective programmes, particularly in marginalised areas such as East Jerusalem. The Palestinian Strategic Plan by the Palestinian Ministry of Education and Higher Education addresses education challenges in Palestine and in Jerusalem particularly (MOEHE 2017), showing the high percentage of schools suffering from a shortage of buildings suitable for educational use, the difficulty of providing suitable land for school construction, and the difficulties of obtaining building permits from the Israeli municipality. It also reports the lack of classrooms in Jerusalem and their small size, leading to overcrowding that prevents the provision of a good learning environment for students.

Further challenges include the lack of minimum health and educational conditions and the targeting of the Palestinian curriculum through modification and imposition of a single modified reference that weakens the Arabic language (Asali Nuseibeh 2015). This interference with the curriculum is based on the accusation of incitement to violence and terror, therefore Israel imposes a curriculum that erases the Palestinian narrative. A report by the Palestinian Ministry of Education points out that 53% of East Jerusalem children study an Israeli curriculum (MOE 2019). Although the Israeli Ministry of Education in 2013 mandated compulsory and free kindergarten education for children aged 3–5.9 years, the implementation of the law in East Jerusalem is very weak (Alian 2016). Similarly, Alian (2016) indicates that although the right to education for children is guaranteed by international conventions, the reality in East Jerusalem reflects a different picture, especially with regard to the occupation's policy of neglect in education. This includes the shortage in the number of classes, the large number of private schools and kindergartens recognised by the Israeli Ministry of Education, the alarmingly high drop-out rates, in addition to the financial temptations to impose the Israeli instead of the Palestinian curriculum in schools.

In East Jerusalem, kindergartens fall under a joint body between the Ministry of Education and the municipality of Jerusalem (MANCHI) under a body called the Jerusalem Education Administration (Asali Nuseibeh 2015, p. 50). There are five types of school system within this regulation, which also applies to kindergartens:

- The first includes schools affiliated with the Palestinian Directorate of Education of the Ministry of Education under the Palestinian National Authority. They obtain licenses from the Palestinian Ministry of Education only, and although they are located in Jerusalem, they use Palestinian curricula. Within this category, there are 6 kindergartens that were attended by 70 children during the academic year 2019–2020 (Khaless 2020).
- The second type includes private schools affiliated with associations that do not receive support from the Israeli municipality in Jerusalem, in order to preserve Palestinian identity, as they follow

Palestinian curriculums. These kindergartens are not licensed by the Israeli municipality although they are located in Jerusalem. These represent 5 kindergartens with a total of 25 classrooms, attended by 562 children during the year 2019–2020 (Khaless 2020).

- A third type is also private and affiliated with associations but receives support from the Israeli municipality and has official recognition by the Israeli Ministry of Education, which is renewed annually. This type comprises up to 75% of the recognised non-governmental schools covered by the Israeli Ministry of Education and Palestinian Ministry of Education (Khaless 2020). These types of kindergartens had around 3,164 children registered during the 2019–2020 academic year.
- Other private kindergartens, only receiving recognition and licensing from the Israeli Ministry of Education, had 10,040 children enrolled during the academic year 2019–2020.
- The last type are governmental schools affiliated with the Israeli municipality, known as municipal schools, and these are fully funded and managed by the municipality and the Israeli Ministry of Education, which are responsible for teachers' salaries, administrative staff, provision of materials, tools, equipment, buildings and space (Alian 2016). The number of students enrolled in these reached 3,890 children during the academic year 2019–2020. This study looks into this type of kindergarten.

## Methodology

The study used a mixture of quantitative and qualitative approaches. It was conducted between December 2020 and May 2021 and included only kindergartens administered by the Israeli municipality and located within the demarcated municipal boundaries. The kindergartens are attended by Palestinian children and employ teachers who hold Israeli identity cards. The study was approved by the Research Ethics Committee at Al Quds University in Palestine, and all information related to kindergarten names and their teachers was made anonymous. Children and their parents were not contacted, nor were any pictures taken.

### *East Jerusalem kindergartens*

The Israeli municipality in Jerusalem lists all kindergartens for children between 3–5.9 years old on its website (Municipality of Jerusalem, 2019).<sup>1</sup> It also includes student numbers enrolled in each class, the addresses of the kindergartens, and the teachers' names. The Israeli education system considers each class as a kindergarten unit in itself, and each teacher is considered a sole principal.<sup>2</sup> When a group of classes are joined under one building, this is considered a kindergarten cluster and one main principal is appointed. In such a case, the teacher is not considered a principal with an administrative role. According to the municipality website during the academic year in which this study was done, there were 131 classes, clustered in 47 buildings within the different neighbourhoods in East Jerusalem. The number of classes within each cluster varied between 2 and 5. Each cluster share a common playground, outdoor play equipment, entrance and outdoor facilities. The total number of children attending these kindergartens was 3,890. Each class had a self-contained learning centre.

### *Study tools*

The quantitative data was obtained through a survey of pictures and aerial photos of all kindergartens and by assessing their outdoor environment according to a checklist that was obtained from studying several standards (explained below). A literature review was conducted to identify the standards and guiding principles necessary to understand the suitability of the outdoor environment. Qualitative data was collected through interviews based on open-ended

questions with nine teachers who worked in different kindergartens located in several neighbourhoods.

### *Physical assessment checklist of kindergartens' outdoor environment*

Three official standards in relation to the outdoor environment regulations for kindergartens were studied from the Palestinian (MOE 2011), Israeli (IMO 2013) and international standards (of NAEYC 2019). They generally represent the requirements for licensing kindergartens in their own regions. The standards were compiled into Table 1, as a checklist of requirements for kindergarten outdoor environments. Although the criteria from the three standards were not utilised in the assessment of the kindergartens under study, the compilation helps to give a general view of the standards applied locally and internationally. According to Table 1, the standards were similar to one another, but varied in relation to the number of toilets and hand-washing basins per child and the playground area allocated per child. Thus, for the sake of the study, the Israeli checklist was accepted as the criteria of assessment, since all kindergartens under study were granted licenses and operated according to this standard. However, when certain information was not precise or measurable, the Palestinian standard was utilised to clarify the criteria. This is because many private kindergartens use the Palestinian standard as their criteria in Palestine and in East Jerusalem. 47 main questions were compiled about the outdoor environment and its suitability for children in regard to: (1) the kindergarten building (2) neighbourhood and surroundings (3) playground (4) play equipment (5) nature and green elements (6) hygiene (7) safety and privacy (8) inclusive education and (9) aesthetics.

To validate the data, experts in different fields were asked to revise the checklist to ensure that it was comprehensive and holistic. This included a health expert, two early childhood experts, and an urban planner, who added their comments and suggestions.

### *Interviews*

Alongside the physical assessment, quantitative measures of the suitability of the environment were studied through open-ended questions and interviews with kindergarten teachers. In total, nine teachers participated in the interviews, each representing a different kindergarten and a larger neighbourhood in Jerusalem. Thus the selection was not random and only those who agreed to participate were interviewed. The kindergarten teachers represented eight neighbourhoods in East Jerusalem; two schools from the north, three mid-north areas, two from the centre of the city, one from the south and two from the south-west. The questions included:

- What are the challenges and difficulties in the outdoor environment of your kindergarten?
- What is your general view of the suitability of your kindergarten building for the children?
- What are the problems you face using the provided spaces?
- Is your kindergarten suitable to receive children with disabilities?

### *Data collection*

A team of two architects and one early childhood specialist were made responsible for data collection in selected neighbourhoods. They were trained how to fill in the checklist and supervised by the principal investigators. Each kindergarten's checklist took a day to complete. Every kindergarten was given a code, and physical assessments were carried out according to the checklist, and filled directly into the survey sheet using a Microsoft Excel file. Each interviewee was contacted by the principal investigators and permissions, consent forms and information were given. Data was collected via telephone calls or/and personal interviews and recorded in written format in Arabic. All interviewee names, kindergarten names and other indicative information were kept anonymous and confidential and were given codes (KT 1 – KT 9). Interviews lasted between 45 and 80 min.



**Table 1.** National and international kindergartens' outdoor environment standards.

	Palestinian standards	Israeli standards	NAEYC standards
Kindergarten building complex	<ul style="list-style-type: none"> <li>- Kindergartens should not be mixed with primary and secondary schools.</li> <li>- Kindergartens should have separate playground.</li> </ul>	<ul style="list-style-type: none"> <li>- It is allowed to change use of an existing building (e.g. residential; commercial) into a kindergarten with proper adaptation.</li> </ul>	N/A
Neighbourhood and surrounding environment of the kindergarten	N/A	<ul style="list-style-type: none"> <li>- Kindergarten should be at least 80 metres away from garbage dumpsters, factories, gas stations, and drug storage facilities.</li> </ul>	N/A
Location of kindergarten within the building	Should be located on a ground floor or first floor.	Should not be more than two floors.	N/A
Toilets	<ul style="list-style-type: none"> <li>- One toilet per 20 children.</li> <li>- Provide toilets for each sexes.</li> </ul>	One toilet per 10 children.	Toilets, drinking water (taps or fountains), and hand-washing facilities should be within 40 feet of the indoor areas that children use. *(40 feet ~ seven metres)
Hand-washing basins	One hand-washing basin per 10 children.	One hand-washing basin in the playground to be used for planting and cleaning.	
Size of playground	At least two metres square for each child.	At least three and a half metres square for each child (11 steps).	At least 75 square feet of outside space for each child at any one time. *(75 square ~ seven metres square)
Shading of playground	Shading should not be less than 25% of the total outdoor playground size.	<ul style="list-style-type: none"> <li>- Should provide shaded areas.</li> <li>- Should not be made of asbestos.</li> <li>- Should be checked and approved by an engineer.</li> </ul>	It should include features that protect children from excessive wind and direct sunlight.
Location of playground	Should never be on rooftops.	Should never be on rooftops.	N/A
Nature and natural materials	Should provide area for planting.	<ul style="list-style-type: none"> <li>- Should provide area for children to play and interact with nature.</li> <li>- Irrigation systems should not be exposed.</li> </ul>	The outdoor learning environment can include a variety of natural elements (three or more natural elements). And it should allow for exploration of the natural environment through areas with natural materials, such as nonpoisonous plants, shrubs, and trees.
Outdoor play equipment	<ul style="list-style-type: none"> <li>- Must be provided.</li> <li>- Spaces between each equipment should not be less than three metres.</li> </ul>	<ul style="list-style-type: none"> <li>- Must be provided.</li> </ul>	<ul style="list-style-type: none"> <li>- Include dramatic play equipment; sensory materials such as sand, water; and gross motor equipment (e.g., climbers, swings, slides, sports equipment) for activities such as pulling up, walking, and climbing in, on, and over; moving through, around, and under; pushing and pulling; and riding.</li> </ul>
Outdoor play equipment materials	Materials used in play equipment should be made of fibreglass according to standard (unbreakable, with no scratches, cleanable and sterilizable, and unaffected by the weather conditions).	<ul style="list-style-type: none"> <li>- Materials of play equipment should be made out of plastic and approved.</li> </ul>	<ul style="list-style-type: none"> <li>- Installed play equipment, such as climbers and swings and other outdoor equipment such as tables, benches, and decks should be made of wood that has not been treated with chromated copper arsenate (CCA).</li> <li>- Equipment should be free of catch points, sharp points, protruding hardware, and entrapment hazards.</li> </ul>

*(Continued)*

**Table 1.** Continued.

	Palestinian standards	Israeli standards	NAEYC standards
Outdoor play equipment types	Should vary in types.	- Should vary between climbing, swinging and spaces for running and bike riding.	A variety of playing equipment should be available indoors and outdoors for children throughout the day.
Fences	Should not be barbed.	- Street fences are a must. - Should be two metres above ground level. - Should not be made of flammable materials, should be durable and not collapsible.	The area should be protected by fences or by natural barriers to prevent access to streets and to avoid other dangers.
Balustrades	Should be provided even with two steps.	Balustrades should be made out of wood or iron coated with plastic and should not be built with stone.	N/A
Playground ground materials	- Should not be concrete, iron or plastic. - Should not be sand alone.	- Non slippery, with no abrupt changes in surface, no scratches and should not allow habitation for insects. - Should not be made of pebble pavements.	Consider how arrangement of ground surfaces, pathways, and equipment can minimise tripping hazards such as exposed concrete footings, abrupt changes in surface elevations, and other man-made elements that can trip children.
Sandbox	If sandpits are used, they should be covered.	- If sandpits are provided, they should be covered. - Should be made of materials that does not harm children.	- If sandpits are part of the facilities, they should be constructed to allow for drainage. - Staff should cover sandpits at the end of each day.
Accessibility	N/A	N/A	The programme should make adaptations so children with disabilities can fully participate in the outdoor curriculum and activities.
Emergency exits	N/A	Should be provided and should open to the outside.	Clearly marked regular and emergency exits.

## Data analysis

The analysis was conducted in two parts. First, the physical assessment provided statistical data. Both principal investigators analysed the data utilising Microsoft Excel to obtain average and percentage results. Second, the data from the interviews with kindergarten teachers were transformed into a text file and translated to English. By using the inductive approach we were able to identify general and common patterns of meaning (Creswell 2013). Content analysis was correlated to the statistical results, and together they generated themes of responses for the criteria in the checklist (Table 2).

## Results

### Kindergarten building type

Among the 47 kindergartens studied, the physical assessments showed that 36% were adapted from existing residential buildings, 21% were part of a larger school complex and 43% were purpose-built on separate sites (Table 2). Amongst the interviewees, six out of nine spoke about the kindergarten being in a residential building and highlighted the problems associated with this. Mainly they talked about the size of classrooms and the limitations on space as well as problems with ventilation. Another matter that was brought up by the teachers is the issue of sharing the space with a school attended by primary school children, which leads to limitations in using shared spaces

**Table 2.** Results of physical assessments and interviews.

	Physical assessment of kindergartens (47 kindergarten)					%	Interviews with teachers (9 interviews from different kindergartens)
	Synthetic grass	Rubber flooring	Ceramic tiles	Asphalt	Mixed		
<i>Building type</i>							
Residential apartments						36%	KT 2- The building is adapted into a basement and shared with another kindergarten. KT 2- Rain water leaks during winter. KT 6- The building is rented, it is small for the classrooms. KT 7- We are located on the ground floor, it is rented. Many people live above in a vertical tower. KT 8- We are located in the ground floor of a residential building. It is rented. Our classrooms are not well ventilated and the sun does not reach them. KT 9- Although the municipality built a new complex, our kindergarten is still located in the old building. The classrooms are small and limited.
Part of a school complex						21%	KT 1- The playground is shared with the school. Our children barely play outside. KT 3- Our kindergarten is in the Old City, it is too small and adapted into a historical building. We share it with the school.
Detached building on separate site						43%	KT 5- We have an ideal kindergarten, the building is new.
<i>Playground</i>							
Playground size (3.5 metres square/child)	0.6 m/child					–	KT 1- Other kindergartens are larger than ours. KT 2- Not enough space for children in classrooms and playground. We share the playground with school children but at different times. KT 3- We have our own playground but it is small for doing activities with the children. KT 4- The playground is not ours alone, others use it too. It is not private. KT 5- The size of the playground is spacious and allows children to run and play freely. We do lots of activities in the playground. KT 6- The playground is spacious. We use it for several activities. However, it can only be used by two classrooms at a time. KT 7- The playground is shared with other three kindergarten classrooms, it is not enough. KT 8- We have two playgrounds, front and back, they are shared with other classes and are small.
<i>Ground material</i>							
Ground material	Synthetic grass 21	Rubber flooring 8	Ceramic tiles 6	Asphalt 2	Mixed 10	–	KT 8- A few children slipped and fell to the ground and were injured due to the rough surface, also, during their playing time, one of the swings fell off and caused minor injuries
<i>Material of horizontal shading -canopy</i>							
Material of horizontal shading -canopy	Metal 3	Plastic 9	Tensile fabric 31	None 4		–	
Horizontal shading > 25%			22			47%	KT 9- Not all the playground is shaded, it is hard to use it sometimes, which makes the space allowed for children to play smaller.
<i>Nature and greenery</i>							
Plantation area for children			43			91%	

(Continued)

**Table 2.** Continued.

	Physical assessment of kindergartens (47 kindergarten)	%	Interviews with teachers (9 interviews from different kindergartens)
Planted trees	24	51%	
<i>Hygiene</i>			
Outdoor toilets	37	79%	KT 3- We do not have toilets in the playground, we have to rush children inside, leaving other children waiting outside. KT 5- We do not have toilets outside in the playground but the toilets in the classrooms inside are very close. KT 7- We have no toilets outside, we use the ones inside only. KT 8- We do not have toilets outdoors, we barely have enough toilets inside that is shared by all the classes and they are three.
Outdoor hand-washing basins	37	79%	
<i>Neighborhood and surrounding environment of the kindergarten</i>			
Kindergarten close to garbage dumpsters	4	9%	
Parking	10	21%	
<i>Safety and privacy</i>			
Wall fences that allow view to the playground	38	80%	KT 4- We do not have fences that can stop school students coming into the kindergarten playground and breaking the play equipment.
Wall fences > 2 metres	40	85%	
Main entrance iron bars	45	96%	
Emergency exists	43	91%	
Solid horizontal canopies	12 out of 17 (residential buildings only)	70%	KT 2- The neighbours complain every time we play music in the playground. We do not play music anymore. KT 8- Neighbours above us complain a lot about the noise. We use fabric sheets to prevent noise reaching them but it is useless.
Shared playgrounds	2		KT 4- We are part of a school complex, which does not make our playground safe. KT 5- Our new building is safe for children. The playground is only used by kindergarten children.
Location of playground on rooftop	4	11%	
<i>Play equipment</i>			
Number of equipment	Average 8 equipment each		
Variety of equipment	4 types (slides, swings, seesaw, climbers)		KT 1- We do not have fixed play equipment in the playground. We have small toys that we have to carry out every time the children go out to play. And that is very hard. Children do not enjoy it.
Distance between each equipment > 3 metres	7	15%	KT 4- Our play equipment are close to each other, it is overcrowded. KT 9- The play equipment are close to each other and the space is crowded.
Sandbox	1	2%	
<i>Inclusive education</i>			
Ramps	36	78%	KT 1- We do not have proper facilities or ramps to receive children with physical challenges, the kindergarten does not consider children with special needs.
<i>Aesthetics</i>			
Usage of colours and murals	35	74%	

such as the playground. KT 1 mentioned that: 'The playground is shared with the school. Our children barely play outside'.

### **Playgrounds**

Playgrounds are the main place that children can be freely active in kindergartens. The largest playground area found was 120 metres square and the smallest was around 24 metres square. The average area allocated for each child in playgrounds in East Jerusalem was 0.601 metres square per child, or two steps, which is almost 1.50 metres square less than the required Palestinian standard, 3 metres square less than the required Israeli standard and 6.50 metres square less than the international standard of NAEYC (2019). This lack of external space was mentioned by kindergarten teachers, especially when several classrooms share the same playground.

The physical assessment also showed that synthetic grass was the most commonly used surface material, found in 21 kindergartens, whilst others used ceramic tiles (six) or asphalt (two) and only eight kindergartens used special shock absorbent rubber flooring. All kindergarten playgrounds were shaded except for four. Among the shaded playgrounds only 49% used shading in more than the 25 percent of the total playground area, while the rest were open to the sky. KT 9 stated that: 'Not all the playground is shaded, it is hard to use it sometimes, which makes the space allowed for children to play smaller'. The majority of the kindergartens used cable-tensioned fabric for shading, which is a stretching material; another three kindergartens used metal and nine used plastic sheets made of light polycarbonate.

### **Nature and natural elements**

It is essential for children to interact with the natural environment and learn how to grow plants and make other creative interactions. According to the results, 91% had a designated area that allows planting, and 24 of the kindergartens had large trees planted around their playgrounds. Only KT 8 mentioned a pine tree planted in her kindergarten, saying that it created a problem, but did not indicate why.

### **Hygiene**

Most of the kindergartens visited (79%) had toilets located in the playground or close by to be used by children when they are playing outside, while the rest had facilities inside only. Similarly, 79% had hand-washing basins necessary for cleaning up after playing and planting outside, which can help children maintain healthy and hygienic habits. However, the results show that there is a total of 94 toilets distributed across the 47 kindergartens with their 3,890 children. This means that each toilet serves 25 children, in contrast to the Palestinian standard (20 children per toilet) and the Israeli standard (10 children per toilet). The same applies to the number of hand-washing basins. KT 3, KT 7 and KT 8 pointed to the location of toilets mainly within their kindergartens, where their positions far from the playgrounds are not easy to manage while children are playing outside. A KT 5 teacher stated that they did not have a problem with the location of the toilets.

### **Neighbourhood and surrounding environment of the kindergarten**

The study showed that four of the kindergartens were located within 100 metres of open garbage dumpsters but no other harmful facilities, like factories or drug storage facilities, were detected nearby. The kindergartens that were located in residential areas had insufficient parking for parents dropping off their children.

### **Safety and privacy**

This section included issues such as the height and visibility of the fences surrounding the kindergarten and the street entrance, and an assessment of the emergency exits and their relation to the playgrounds. Other aspects included safety in sharing the playground with other school children, as well as measures taken to protect children from risks due to residents living on the upper floors when the kindergarten was located in a residential building. The results show that all kindergartens were surrounded with fences, and 85% exceeded two metres in height, while the others were shorter. 80% of the fences were not solid and allowed a view of the playground from the outside. Most of the kindergartens had iron bars in front of the main entrance (96%), which can stop children from rushing towards the street and reduces the chance of accidents. Many of the kindergartens (91%) had emergency exits, although nine percent did not. What is alarming is that four had playgrounds on rooftops and although these were fenced, it contradicts both Palestinian and Israeli standards.

A major concern were the problems faced between the kindergartens and the residential units above. The study showed that 17 kindergartens were located in residential buildings with people living above them. Out of 17 kindergartens, 12 of these did not have solid horizontal canopies to catch anything that might accidentally fall from balconies or windows, and to provide privacy for the children and staff. Kindergarten teachers identified problems such as: KT 2's comment that 'The neighbours complain every time we play music in the playground. We do not play music anymore'. KT 8 mentioned that 'Neighbours above us complain a lot about the noise. We use fabric sheets to prevent noise reaching them but it is useless'. However, in relation to playground safety when shared with other students within a school complex, KT 4 indicated that: 'We are part of a school complex, which does not make our playground safe'. Only KT 5 felt safe and mentioned that: 'Our new building is safe for children. The playground is only used by kindergarten children'.

### **Play equipment**

Play is an important aspect in the development of the gross-motor, sensory and other abilities in children. Each piece of play equipment is a tool to provide the means to develop such abilities and they should be carefully considered. In this study, four pieces of equipment were checked; the swing, seesaw, slides and climbers. The results of this study show that 26 kindergartens did not have swings, 10 did not have a seesaw and climbers and two did not have slides. Two kindergartens did not have any installed play equipment. The distance between the pieces of equipment exceeded the recommended three metres in only seven kindergartens. In all the others the pieces of equipment were too close to each other, with an increased danger of accidents. Also, play equipment occupies part of the total playground and reduces the area for children to run and conduct other free activities. KT 1 stated that: 'We do not have fixed play equipment in the playground. We have small toys that we have to carry out every time the children go out to play. And that is very hard. Children do not enjoy it'. Another teacher, KT 4, mentioned that: 'Our play equipment are close to each other, it is overcrowded'. KT 9 also said that: 'The play equipment are close to each other and the space is crowded'. Another issue found during the investigation is a sandpit was only present in one kindergarten, while the rest did not have any.

### **Inclusive education**

The results show that ramps were available in only 78% of the entrances, and therefore the rest do not allow children with certain disabilities to have access to the building. Also, none of the play equipment observed was designed to be used with disabled children.

## Aesthetics

The use of colour is important to stimulate children's imagination, and usually this is traced on outdoor and indoor walls of kindergartens. Only 34% of the kindergartens used colours and murals on the walls, while the rest had plain walls. The common colours were the primary colours (red, blue and yellow) and some secondary colours (orange, green and pink). Plain blue synthetic mats stuck to the wall were used to exhibit art in 19 kindergartens.

## Discussion

The findings of this study show that the Israeli-administered public kindergartens attended by Palestinian children in East Jerusalem do not meet the official standards, even though they were licensed on the basis of those standards, and that all the available evidence from the literature suggests that this is likely to have long-term negative effects on the children's well-being, development and growth. These results are in line with similar studies and findings that show Israeli attitudes towards Palestinian Jerusalemites' education is based on neglect and discrimination (Asali Nuseibeh 2015).

A significant finding was the limited range of outdoor spaces allowed for children to play freely. The reason is the lack of space designated for public services and open spaces within the urban planning policies. The appropriation of residential buildings for kindergartens is not considered suitable as they do not allow children to play freely. Children are deprived of their right and need to play outdoors, and this can have negative effects on their learning (Mirrahimi *et al.* 2011) and well-being (Lovasi *et al.* 2011). It can also diminish their motor development (Dodge *et al.* 2010), weaken the development of social, emotional, physical and cognitive skills (Dodge *et al.* 2010) and lead to obesity (Cleland *et al.* 2005). It also affects their personality and can lead to negative emotions like fear, anxiety (Wilson *et al.* 1996) and tension (NAEYC 2007). Additionally, children's opportunities to experience outdoor play at kindergarten is particularly important in the context of East Jerusalem, as for many their access to outside play areas is limited where they live and in the city in general.

Shortage of space leads to an inability to provide basic services in line with the given standards for the kindergarten's outdoor environment. This includes the provision of play equipment that allows children to engage with diverse activities, like jumping, climbing, swinging and other means to develop muscular and motor skills safely, which cannot usually be provided within indoor environments. Also, play equipment injuries are mainly caused by falls (Armstrong 2004, Dobbins *et al.* 2009) such as being pushed by others or hit with or caught in other equipment due to inadequate space between. The results demonstrate that playground areas may pose dangers as in many cases the ground material is not a shock absorbent or cushioned surface, such as wood chips or rubber. Children falling onto concrete and asphalt suffer twice the injuries of those who fall on cushioned surfaces (Branson *et al.* 2012). Within East Jerusalem kindergartens, the ground materials are not adequately considered, with the extensive use of synthetic grass, which is not suitable and can be harmful. When asked about this issue during the interviews, one of the teachers (KT 8) said that: 'a few children slipped and fell to the ground and were injured due to the rough surface, also, during their playtime, one of the swings fell off and caused minor injuries'. Furthermore, locating playgrounds on rooftops can create further safety problems, and they are not easy to evacuate in case of emergency.

Other factors that discourage children to play outside are adverse weather conditions. During hot and/or rainy days, playgrounds cannot be used if proper shelter is not available. Overhead canopies, overall shading areas and special materials are essential to protect children from sunburn, skin cancer and to protect the overheating of play equipment and play areas (Vanos *et al.* 2017).

Another important finding was the lack of privacy for children in the kindergartens studied. The lack of solid fences breaches children's privacy and can expose children to intruders from the outside

world, including physical and verbal harassment and bullying. Kindergartens located within residential buildings that do not have a visual and physical barrier from the neighbours above can endanger children. Kindergartens that are located in larger primary and secondary school complexes and share the same playgrounds are considered critical. Even if playgrounds are not used by different ages at the same time, sharing a playgrounds means that play equipment can be above the younger children's capabilities. Studies have shown that playgrounds allow children to develop skills through the gradual provision of challenges and age-related abilities (Boyers *et al.* 2014). There are differences related to type, layout, scale and judgments in the physical characteristics and cognitive and social skills of preschoolers and school-age children (Acar 2014). Therefore, it is essential to keep kindergarten buildings separate, specifically designed for this purpose, with quality indoor and outdoor environments.

Similar to this is the need to ensure that kindergartens are sited in proper locations within the broader urban setting. The lack of proper services in the Palestinian neighbourhoods in East Jerusalem includes the non-collection of large garbage containers, leading residents to burn their waste (Baumann and Massalha 2022, Adalah 2013, Atallah 2020, Alyan 2009). Dumpsters hold organic and non-organic litter like plastics which, when burned, can be harmful to those who inhale the polluted air. Children are more vulnerable to environmental pollution than adults, as their bodies and respiratory airways are smaller and their organs are still developing. Children are at higher risks of infectious diseases and noncommunicable diseases (NCDs), and prone to developmental delays that reduce cognitive, physical and socio-emotional potential (UNICEF 2017, WHO 2018). Policy makers and urban planners must consider environmental factors, policies and practices while creating environments where children can thrive.

Outdoor environments can provide more possibilities to explore the world and develop a sense of wonder, mystery and creativity (Ouvry 2003, Aziz and Said 2012). Interactions with colour have proved to be desirable for children's development, and are necessary to stimulate the senses and create excitement. Colours also have effects on muscle strength, like blue, while colours like red and pink have the opposite effect (Grangaard 1990). Furthermore, yellow can induce joy and red can stimulate and excite (Sharpe 1974). In the kindergartens studied this use of colour on painted walls and/or murals was missing.

A final finding is the issue of inclusive education that integrates children with special needs with their peers. This was missing in many of the kindergartens studied, which were inadequately equipped. It means that many children with disabilities are deprived of the right to attend kindergartens in their neighbourhoods and need to travel longer distances. Also, children at younger ages develop self-esteem through learning to respect the differences of others. They can offer help and witness or act as role models by learning to accept others. Studies show that inclusive education provides opportunities to observe, accept others and realise that there are differences (Haider 2008, 2012 Favazza, *et al.* 2017).

## Conclusion

The results of this study in their broadest sense contribute to debates on the production of inequality, differentials and poverty in contested urban areas and those with unjust distribution of services and health outcomes. This is a subject that has been given more consideration recently within discussions of urban health and poverty, both for experts and as urban citizens in our growing world. From a human rights perspective, research is essential to enhance more international treaties regarding human rights, especially for children's health and well-being.

Based on the study results, the lack of space and poor living conditions in East Jerusalem lead to a lack of adequate facilities in kindergartens. The kindergartens studied are not well designed or properly equipped, which makes them inadequate in terms of children's development and learning, although they are licensed and administered under Israeli laws and standards. Generally, the poor outdoor play environments in East Jerusalem and lack of open spaces make it essential for kindergartens to develop appropriate alternatives to support children's outdoor play.



It is recommended that the Israeli Ministry of Education review the appropriateness of the kindergarten learning environment, including materials, equipment and physical conditions, to ensure the provision of local and international kindergarten standards, and to achieve equity in children's development. This includes reconsidering the practice of locating kindergartens in buildings not designed for this purpose, improving the quality and spacing of outdoor play environment, protecting children from exposure to direct sun or rain, and providing more natural areas to allow proper free play.

The scope of future research should be expanded to examine indoor environments in East Jerusalem kindergartens, where further research is needed to investigate the impact of the spaces and experiences on children's development. This research would be helpful to many stakeholders, such as teachers and school principals, as well as policy- and decision-makers, as it would increase their awareness regarding the importance of the kindergarten environment in supporting children's development and learning.

## Notes

1. The list is updated continuously and may change. The web site can be accessed on the link: <<https://www.jerusalem.muni.il/ar/residents/education/kindergardens-registration/>>, which was accessed by the authors on 5 June 2019.
2. All teachers were female according to the municipality list.

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## Disclosure statement

No potential conflict of interest was reported by the author(s).

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