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The impact of outdoor play on children's well-being: A scoping review

Dampak bermain di luar ruangan pada kesejahteraan anak: Tinjauan pelingkupan

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Abstract

Outdoor play is a broad term that refers to a wide range of activities in a natural setting. However, modern technological advancements and gadgets such as television, computer and online games have resulted in children spending an increasing amount of time each day engaged in sedentary indoor activities rather than spending time outdoors. Many children's social and physical health has deteriorated because of the reduction in outdoor access, which has been increasingly prevalent in recent years and may have long-term consequences. This scoping review aimed to determine what information was currently available on the impact of outdoor play on children's wellbeing. This scoping review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) criteria. As many as 165 citations were discovered across six databases for this scoping review, and 13 articles were eligible for inclusion. The majority of the findings showed that outdoor play positively impacts children's social, emotional, physical, and cognitive development.

Keywords: children; early childhood education; outdoor play; psychosocial; well-being

Abstrak

Bermain di luar ruangan adalah istilah luas yang mengacu pada berbagai kegiatan dalam pengaturan alam. Namun, kemajuan teknologi modern dan gadget seperti televisi, komputer, dan game online telah mengakibatkan anak-anak menghabiskan lebih banyak waktu setiap hari untuk melakukan aktivitas di dalam ruangan daripada menghabiskan waktu di luar ruangan. Banyak kesehatan sosial dan fisik anak-anak telah memburuk karena berkurangnya akses luar ruangan mereka, yang semakin umum dalam beberapa tahun terakhir dan mungkin memiliki konsekuensi jangka panjang. Tinjauan pelingkupan ini bertujuan untuk menentukan informasi apa yang saat ini tersedia tentang dampak bermain di luar ruangan pada kesejahteraan anak-anak. Tinjauan pelingkupan ini dilaporkan sesuai dengan Kriteria Item Pelaporan Pilihan untuk Tinjauan Sistematis dan Ekstensi Meta-Analisis untuk Tinjauan Lingkup (PRISMA-ScR). Untuk tinjauan pelingkupan ini, 165 kutipan ditemukan di enam database, dan 13 artikel memenuhi syarat untuk dimasukkan. Sebagian besar temuan menunjukkan bahwa bermain di luar ruangan berdampak positif pada perkembangan sosial, emosional, fisik, dan kognitif anak-anak.

***Kata kunci**: anak-anak; pendidikan anak usia dini; bermain di luar ruangan; psikososial; kesejahteraan*

Introduction

Malaysia is undergoing an information and technological revolution, which requires individuals to think critically, innovatively, imaginatively, and creatively. According to the Malaysia Education Blueprint 2013-2035 (Ministry of Education 2013), today's most pressing issue is assisting students in developing higher-order thinking abilities, emphasizing the importance of integrating children in learning activities that promote higher-order thinking. Despite the declared goal of strengthening student thinking through a carefully planned national curriculum reform program, evidence from teachers' classroom practices in Malaysia contradicts this goal. Teachers' practices appear to be at odds with the necessities of a burgeoning knowledge society in Malaysian classrooms (Tee et al. 2018). Hizwan et al. (2017) found that teachers face four barriers when it comes to introducing higher-order thinking abilities into their classrooms. These include teaching and performing critical thinking, creative thinking, decision-making, and problem-solving. Additionally, due to standard core requirements, standards-based assessments, and high-stakes testing, instructors have limited time to develop new programs to meet current educational needs (Best et al. 2017).

Apart from the issue mentioned above, children in this modern era are more prone to spend their time indoors with their electronics due to technological advancement and urbanization. Consequently, the amount of outdoor and nature-based play has diminished because of the growth of electronic activities and games (Burke et al. 2021). According to a recent study by Joginder Singh et al. (2021), children aged three to five years spent an average of 2.64 hours per day watching television, exceeding the recommendation of the American Academy of Paediatrics, with mobile phones following closely behind. This is a severe problem that should be addressed since it may affect their emotional and mental wellbeing. Twenge and Campbell (2018) found that high screen users were significantly more likely to exhibit poor emotion control and an inability to complete tasks, a lack of curiosity, and difficulty making friends. Additionally, the study notes that adolescents who spend time excessively on screens are twice as likely to be diagnosed with depression or anxiety or seek treatment for mental or behavioral health problems (Twenge & Campbell 2018). Additionally, children today face the risk of developing Childhood Psychosocial Dysfunction (CPD), which can impair their mental and emotional wellbeing in daily life (Soliman et al. 2020). According to the 2015 National Health Morbidity Survey, 12.1% of Malaysian youngsters suffer from mental health problems (Malaysian Mental Health Association 2019). If this issue is not treated, it may have a detrimental impact on their lives in the long run.

Hence, this study aimed to identify the currently available research to determine the importance of outdoor learning to children's wellbeing. This is particularly pertinent given that recent research indicates that children's mental and physical health is declining. Hence, regular physical activity and outdoor stimulation might help children's health and academic performance (Becker et al. 2017). By transferring students' learning environment to an outside setting, they gain access to a particularly rich context for influencing their learning and opportunities for mobility, stimulation, and attention, all of which help them focus more effectively (Cameron & McGue 2019). As a result, it will enhance learning and engagement, broaden skill development, and improve health, wellness, and enjoyment in the classroom (Quibell et al. 2017), which benefits the children and avoids the issues mentioned previously, as outdoor learning was considered to minimize time spent sedentary during traditional classroom-based instruction (Marchant et al. 2019).

Research Method

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) criteria were utilized for this scoping review. The current scoping review was conducted using Arksey and O'Malley's (2005) methodological framework as seen in Figure 1, which included the following steps: (1) identifying research questions, (2) identifying relevant studies, (3) selecting relevant studies, (4) charting the data, and (5) collating, summarizing, and reporting the results.

Figure 1.
Methodological framework
Source: Arksey & O'Malley 2005

Although outdoor play recently gained focus in the education system, there are still limited literature resources on the topic, mainly focusing on children. Therefore, the research question addressed for this review was, 'What is empirically known from the existing literature about outdoor play among children?' This question served as a guide for subsequent research in this study. Table 1 summarizes the underlying research questions and research objectives derived from the PCC framework.

Table 1.
Research questions formed based on the PCC model

Research Question	Specific Objective
1. How is the research focused on outdoor play distributed?	1. Explore the temporal and geographical relationship and the setting in which studies on outdoor play have been developed.
2. What are the design types of the studies related to outdoor play among children?	2. To identify the main types of design used in studies on outdoor play in preschool.
3. What are the purposes and topics for which outdoor play are developed?	3. To identify purpose and topics most frequently investigated in the studies about outdoor play in pre-school.
4. What are the elements researched into by past research?	4. To identify the elements been researched by past researchers.
5. What is the effectiveness of outdoor play on children's wellbeing?	5. To summarise the effectiveness of outdoor play on children's wellbeing.

Source: Primary data

The studies relevant to the prior research were found using search strings and keywords in three online databases: Education Resources Information Center (ERIC), Scopus, and Web of Science (WOS). To help refine the search strings, the Boolean operators OR and AND were utilized. Table 2 shows the search strings and keywords that were used.

Table 2.
Search string/keyword

Database	Search string/keyword
Education Resources Information Center (ERIC)	("impact*" OR "influence*" OR "significance*") AND ("outdoor learn*" OR "outdoor activit*" OR "outdoor play" OR "outdoor game" OR "free learn*" OR "free activit*" OR "free play" OR "free game") AND ("child*" OR "preschooler*" OR "kid*" OR "kindergartener*" OR "pre-K") AND ("emotional" OR "social*" OR "psychosocial*" OR "health" OR "welfare*" OR "well-being*")
Scopus	TITLE-ABS-KEY (("impact*" OR "influence*" OR "significance*") AND ("outdoor learn*" OR "outdoor activit*" OR "outdoor play" OR "outdoor game" OR "free learn*" OR "free activit*" OR "free play" OR "free game") AND ("child*" OR "preschooler*" OR "kid*" OR "kindergartener*" OR "pre-K") AND ("emotional" OR "social*" OR "psychosocial*" OR "health" OR "welfare*" OR "well-being*"))
Web of Science (WOS)	TS= (("impact*" OR "influence*" OR "significance*") AND ("outdoor learn*" OR "outdoor activit*" OR "outdoor play" OR "outdoor game" OR "free learn*" OR "free activit*" OR "free play" OR "free game") AND ("child*" OR "preschooler*" OR "kid*" OR "kindergartener*" OR "pre-K") AND ("emotional" OR "social*" OR "psychosocial*" OR "health" OR "welfare*" OR "well-being*"))

Source: Primary data

The research team established inclusion and exclusion criteria to streamline the search and exclude irrelevant papers. The research member removed duplicate entries and assessed the remaining papers for eligibility from the titles and abstracts. The eligible articles were then displayed in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow chart based on the established criteria indicated in Table 3.

Table 3.
Inclusion and exclusion criterion

Inclusion criterion	Exclusion criterion
1. Articles published from 2018-2022	1. Articles published before 2018
2. English language	2. Other languages
3. Focus on outdoor play	3. Not related to outdoor play
4. Focus on children/pre-schooler	4. Not related to children/pre-schooler
5. Journal articles	5. Full text not attained

Source: Primary data

The data mapping process was carried out by the research team by discussing and determining that the following attributes of the articles should be extracted and included in the chart: article title, author, year of publication, country of origin, study design, topic, setting, target group, focus elements, the purpose of study, and significant findings. The first author gathered this vital information from each finalized article and charted it.

The research team then analyzed the collected data in the literature matrix to ensure they adhered to the pre-determined inclusion and exclusion criteria. The senior author went through it again and revised it. The findings were finalized and presented in a report to assist the research team in generating the scoping review.

Results and Discussion

Through the search, 165 citations were identified. Based on Figure 2 shown, 57 articles were retrieved from Web of Science (WOS) database, 51 were found from Scopus and 57 from Education Resources Information Center (ERIC).

Forty duplicates were removed, and 125 citations were screened by title and abstract. Eighty-five sources were excluded from the screening process, and the remaining 40 articles were assessed through data extraction to check their eligibility. After evaluating the data, 27 articles were excluded due to multiple reasons: (a) 13 studies focused on other topics such as physical activity, learning disability, and parent-child relationship, (b) two narrative reviews and one systematic review article, (c) four studies were focusing on a different target age group, (d) seven were excluded due to other reasons. The remaining 13 studies were selected to be included and discussed in this scoping review, as seen in Table 4.

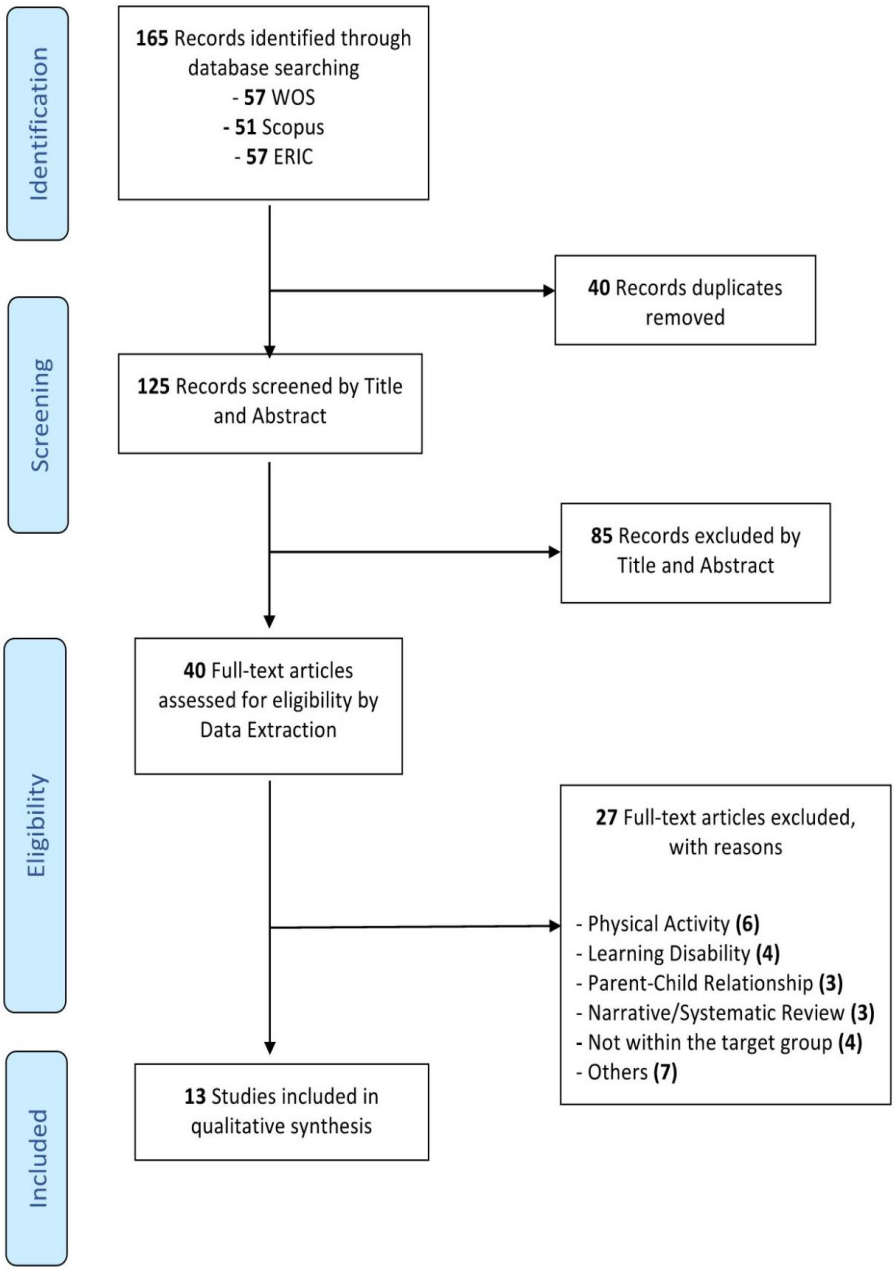

Figure 2.
Flow diagram of scoping review
Source: Primary data

Table 4.
Literature matric of accepted articles

References	*Country*	*Study Design*	*Setting*	*Target Group*	*Focus Elements*	*Description*	*Results*
Bay (2020)	Turkey	Qualitative - Draw-and-tell technique	Pre-school	5 years old	Type of play Social connection Physical function Playground Toy preference	To investigate children's favored plays and the features that shape these plays in four pre-school groups in Turkey.	The findings revealed that children preferred open-ended play, modern play, playing with friends, dynamic play, indoor play, and utilizing ready-made toys.
Omidire et al. (2018)	South Africa	Qualitative – Exploratory case study	Pre-school	±6 years old	Movement skills Mathematics skills Language skills Physical development Social development Cognitive development	This study aimed to analyze how structured educational activities may be used to teach arithmetic and language topics.	The study's findings imply that combining structured movement exercises with math and language concepts positively impacts pre-school physical, social, and cognitive development.
Omidvar et al. (2019)	Canada	Mixed methods – Game Testing	Pre-school	3-5 years old	Emotional Affinity with the Biosphere Cognitive Affinity with the Biosphere Attitudinal Affinity with the Biosphere	To investigate pre-school children's cognitive, emotional, and attitudinal bio-affinity who have spent at least one year in Reggio-Emilia pre-schoolers.	The findings suggest that, despite the fact that the pre-schools' Reggio-Emilia-inspired curriculum provided ample chances for children to interact with nature, the children's cognitive, emotional, and attitudinal affinity for nature was low, according to the results.

Rymanowicz et al. (2020)	USA	Mixed-methods – Semi-structured interviews and surveys	Pre-school	Pre-school aged	Cognitive skills Language skills Social skills Scientific inquiry Interaction with nature Interest in exploration Impacts on family interactions	To investigate how the Farm Sprouts program influenced children's cognitive, verbal, and social skills, scientific curiosity, nature engagement, exploratory interest, and family relationships.	According to the findings of this program evaluation, quality agricultural or environment-based activities can help a child's language and speech skills, as well as their interest in nature and desire to explore, as well as enhance family relationships.
Gil-Madrona et al. (2019)	Spain	Quantitative - Questionnaire	Park	Children	Social skills Motor skills Creativity Obesity reduction	To investigate children's caregiver's perspectives on the impact of public playgrounds on children's motor, social, and creative development, as well as obesity reduction.	The findings revealed that the majority of participants felt that public playgrounds contribute to children's social skills, motor skills, creativity, and obesity reduction.
Hinkley et al. (2018)	Australia	Quantitative – Online Survey	Pre-schools, childcare centers and early childhood activity groups	2-5 years old	Screen time Outdoor play Social skills	This study examines probable connections between screen usage, outdoor play and social skills.	The results indicate that television/DVD/video watching has an inverse relation with pre-school children's social skills, but outdoor activities has a positive connection.
Sando (2019)	Norway	Qualitative - Systematic and randomized video observations	ECEC institutions	3-4 years old	Well-being Physical Activity Social characteristics & Play	To examine children's well-being and physical activity in various outdoor locations to determine the relationship	The utilization of pathways and open places was favorably connected with children's physical activity.

					Place and Materials	between the outdoor environment and their health.	
Wainwright et al. (2019)	United Kingdom	Mixed-methods - Observations, field notes and video	School	3-7 years old	Pupils' involvement and engagement in activities	To investigate the levels of participation and engagement of Foundation Phase students in activities.	When tasks were regarded as play, pupils were more engaged and had better levels of well-being.
McCree et al. (2018)	United Kingdom	Mixed methods – Interviews, observation, focus group, questionnaires	School	5–7	Academic attainment Well-being Connection to nature	The study examines the project affected the children's academic performance, well-being, and connection to nature.	The results emphasize the significance of social free play outdoor and connections with a specific location in helping children develop emotional resilience and self-control.
Fathirezaie et al. (2021)	Iran	Semi-experimental – Pre-test-post-test design	Nature school or kindergarten	5.5–6.5 years old	Motor proficiency Social Development	To examine the effects of the two affordances intervention models on children's motor skills and social maturity.	Natural outdoor activity has a more substantial favorable effect on physical efficiency and social maturity than kindergarten activities, according to the findings of a mixed ANOVA. Both groups improved, but the nature school group progressed more rapidly, according to intra-group analyses.
Riazi et al. (2021)	Canada	Qualitative - Semi-structured interviews	N/A	5-11 years old	Individual factors Interpersonal factors Built factors Natural environment factors Children's movement behaviors	The purpose of this study was to determine how parents perceived pandemic-related constraints and the impact these restrictions had on their children's mobility behaviors.	According to the research, individual, interpersonal, built, and natural environment factors all contributed to children's movement behaviors. The results highlighted the loss of scheduled activities and places for children's physical activity, as well as restricted outdoor play alternatives, which are worsened by declining childhood independence.

Almers et al. (2021)	Sweden	Qualitative – Walk-and-talks	Pre-schools	4 years old	Favorite features Associated Affordances Children's meaning-making of new features to promote ecosystem services Relations with plants and animals	To examine children's preferred schoolyard features.	Few children showed genuine interest in elements designed to improve ecological functions.
Mygind et al. (2021)	Australia	Cross-sectional study	ECEC centers	2-5 years old	Socioemotional function Vegetation cover	This study aimed to determine the extent to which vegetation cover in four critical behavioral settings was associated with improved socioemotional performance in preschool-aged children.	There was no indication that spending time playing outside, sleep length throughout the day or night, or physical activity moderated the relationship between emotional issues and vegetation cover.

Outdoor play research distribution

First and foremost, to understand the study better, it is best for us to understand the definition of outdoor play. According to Cameron and McGue (2019), outdoor education is a form of experiential learning that enables children to learn using all their senses through exposure to the natural world. Meanwhile, according to Best et al. (2017), the broad idea of 'outdoor education' incorporates actual learning experiences and learning by doing while utilizing the outdoors as a classroom. Bento and Dias (2017) claim that play improves cognitive, physical, social, and emotional wellbeing as a natural and engaging activity that fosters children's growth and development. In consequence, by incorporating outdoor education into children's play, the children will experience a stimulating and engaging activity with nature that will perhaps positively affect their wellbeing.

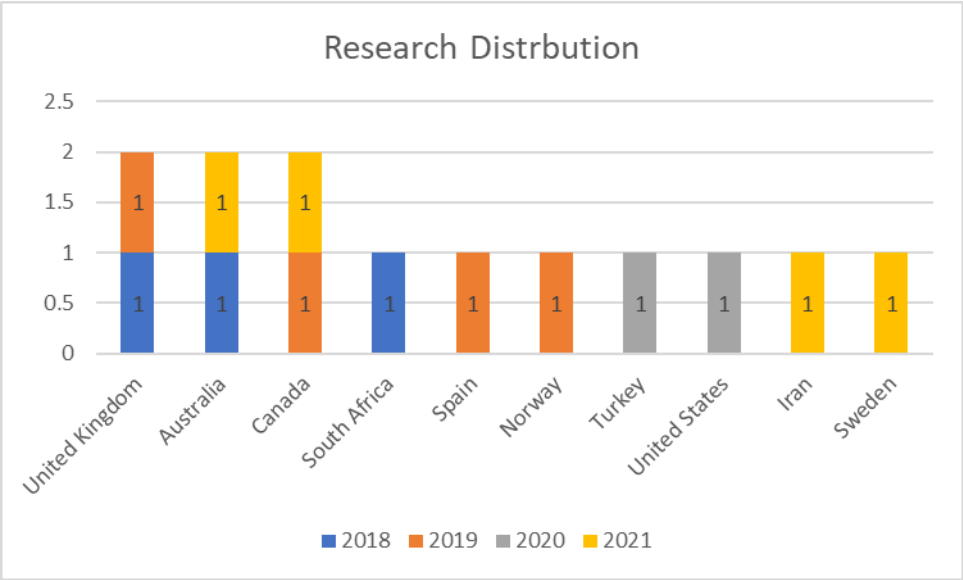

Figure 3.
Stacked columns of distribution based on the year and country
Source: Primary data

The studies included in this review were published between 2018 and 2021, as seen in Figure 3. In 2018, a total of n=3 articles (Hinkley et al. 2018, McCree et al. 2018, Omidire et al. 2018) were found to have researched outdoor play among children. In addition, there were n=4 studies identified from 2019 (Gil-Madrona et al. 2019, Omidvar et al. 2019, Sando 2019, Wainwright et al. 2019) and 2021 (Almers et al. 2021, Fathirezaie et al. 2021, Mygind et al. 2021, Riazi et al. 2021), respectively, from the three databases. Meanwhile, in 2020, a total of n=2 studies (Bay 2020, Rymanowicz et al. 2020) were determined to be related to outdoor play among children.

In terms of distribution, the highest number of studies were conducted in the United Kingdom (McCree et al. 2018, Wainwright et al. 2019), Australia (Hinkley et al. 2018, Mygind et al. 2021) and Canada (Omidvar et al. 2019, Riazi et al. 2021) with n=2 articles, respectively. Other countries that were also included in these studies were Turkey (Bay 2020), South Africa (Omidire et al. 2018), the United States (Rymanowicz et al. 2020), Spain (Gil-Madrona et al. 2019), Norway (Sando 2019), Iran (Fathirezaie et al. 2021), and Sweden (Almers et al. 2021), with n=1 articles each.

Purposes of outdoor play studies

According to the WHO (World Health Organisation 2019), children, including those with disabilities, should be encouraged to participate in a variety of safe and enjoyable physical activities that promote natural growth because outdoor activities are critical in preventing the potential negative consequences of overexposure to sedentary activities. Given that outdoor learning is by its very nature characterized

by purposeful movement, pupils have reported feelings of tranquility, safety, contentment, and relaxation when learning outside (Webb 2018), all of which are beneficial to their mental health.

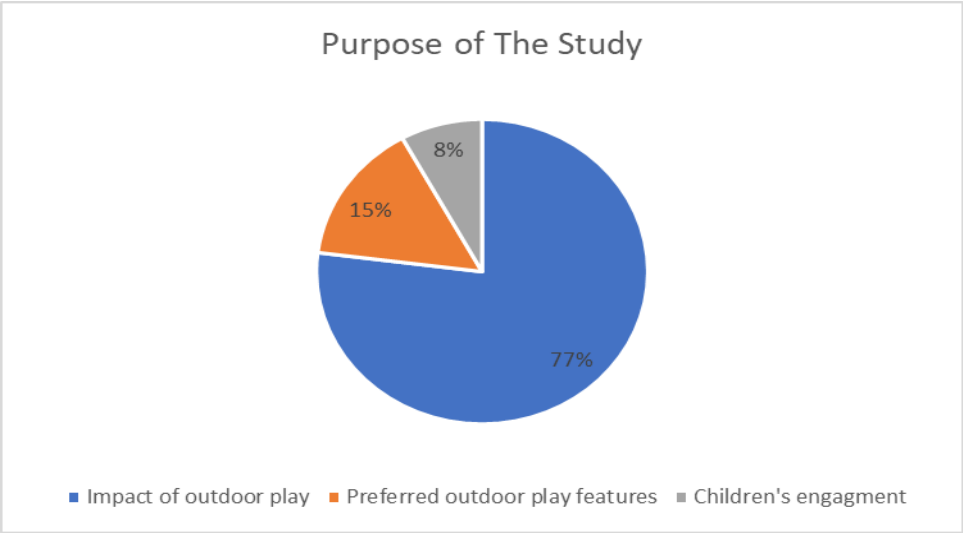

Figure 4.
Pie chart of the purpose of the study
Source: Primary data

There were various reasons for conducting this study, as seen in Figure 4, the main purposes can be seen in most of the articles, with n=10 articles (Hinkley et al. 2018, McCree et al. 2018, Omidire et al. 2018, Gil-Madrona et al. 2019, Omidvar et al. 2019, Sando 2019, Rymanowicz et al. 2020, Fathirezaie et al. 2021, Mygind et al. 2021, Riazi et al. 2021) were the impact of outdoor play on children's emotional, physical, mental, and social wellbeing. Besides that, n=2 studies (Bay 2020, Almers et al. 2021) were researched to determine children's preferred outdoor play features. Investigating children's engagement during outdoor play (Wainwright et al. 2019) was also one of the purposes identified in this scoping review.

Research design for implementing outdoor play

The researcher has also identified a few studies that mentioned the challenges of implementing outdoor play for children through this scoping review. Besides technological advancement that has hindered children's engagement in outdoor play, the COVID-19 pandemic has also been a significant reason why it happened, especially in recent years. From the accumulated 13 studies, n=5 (Omidire et al. 2018, Sando 2019, Bay 2020, Almers et al. 2021, Riazi et al. 2021) were qualitative, followed by n=4 (McCree et al. 2018, Omidvar et al. 2019, Wainwright et al. 2019, Rymanowicz et al. 2020) mixed-method research design. Meanwhile, n=2 studies (Hinkley et al. 2018, Gil-Madrona et al. 2019) used quantitative as their research design. Besides that, there were also n=1 (Fathirezaie et al. 2021) semi-experimental and n=1 (Mygind et al. 2021) cross-sectional studies.

Riazi et al.'s (2021) study mentioned that many families have lost the ability to do physical activities and outdoor play as most of the places were closed due to restrictions. Structured outdoor activities such as curriculum and sports were also limited to ensure social distancing. Besides that, restriction from parents was also one of the causes that can be found since most parents would not allow their children to play outside unsupervised, and the parents could not bring the children outdoor as they were busy. Furthermore, the results indicate that children's negative attitudes toward nature, which can be attributed to fear of both wild and domesticated animals, as well as the fear of becoming lost or injured, have resulted in the children feeling safer and more comfortable in indoor environments and playgrounds, and reluctant to spend time outdoors in green and natural environments (Omidvar et al. 2019).

Elements of outdoor play activities and outdoor environment features

To identify the impact of outdoor play on children's wellbeing, researchers need to first understand the elements or features of the outdoor environment and outdoor play activities before they can be implemented. In this context, the outdoor environment includes the surrounding area of the place where children go to play, such as the playground or schoolyard; and outdoor play features such as toys, natural loose parts, or even educational features such as ant boxes. Out of 13 articles, n=2 articles (Bay 2020, Almers et al. 2021) contained elements related to the outdoor environment and play features.

Bay (2020) and Almers et al. (2021) in their study focused on the outdoor features that were available during outdoor play to identify children's favored outdoor play activities and toys and whether it gives a positive impact on their wellbeing. Almers et al. (2021) mentioned in their study that it is essential to provide a wide range of choices in the playground to accommodate children's preferences. In their study, the multi-play station is one of the most favored outdoor play features that the children enjoyed playing with since it afforded movement which allowed them to climb, jump, and even do pretend play as they were able to hide, nest, and rest at the multi-play station as it is a shielded place. This will give a positive impact on their wellbeing as physical activity increases children's development.

However, unlike in Almers et al.'s (2021) study, children in Bay's (2020) preferred modern play such as computer games and indoor playgrounds. These findings showed that children nowadays are more inclined to spend their time indoors instead of outdoor. Despite that, both children in and Bay's (2020) and Almers et al.'s (2021) studies preferred open-ended plays, demonstrating their desire for unstructured games. This allows them to use their creativity and imagination, which will help in their cognitive development. Besides that, in both studies, children generally chose dynamic plays such as hopscotch or chase when they were playing together with family or friends. This will impact positively on their social wellbeing. Therefore, it is necessary to know children's preferred outdoor play and environment so that the teacher and parents can give appropriate resources for them to play and learn with the purpose that the children will enjoy their outdoor playtime more than sedentary indoor activities.

Effectiveness of outdoor play on children's well-being

There were multiple elements in the studies that have been identified. The majority of the studies (n=10) (Hinkley et al. 2018, McCree et al. 2018, Omidire et al. 2018, Gil-Madrona et al. 2019, Omidvar et al. 2019, Sando 2019, Rymanowicz et al. 2020, Fathirezaie et al. 2021, Mygind et al. 2021, Riazi et al. 2021) researched the effects of outdoor play on children's emotional, social, physical, and cognitive development. Based on this scoping review, one of the significant findings that have been identified from n=8 articles (Hinkley et al. 2018, McCree et al. 2018, Omidire et al. 2018, Gil-Madrona et al. 2019, Sando 2019, Rymanowicz et al. 2020, Fathirezaie et al. 2021) indicated the positive impact of outdoor play on children's well-being, whereby outdoor play has improved children's social, emotional, physical, and cognitive development.

Based on the review, few articles have shown a positive correlation between outdoor play and children's wellbeing. According to Omidire et al.'s (2018) research, outdoor play positively impacts children's cognitive, physical, emotional, and social development. The findings showed that structured movement educational assessment activities that were organized in an outdoor setting have a favorable influence on helping children grasp mathematics and language concepts. It allows the participants to obtain information in mathematics and linguistic concepts as it increases their perceptual-motor development (Omidire et al. 2018), which involves brain function, which helps children plan and make decisions. Structured movement educational assessment activities are recognized as an essential part of pre-school development because they encompass all areas of development and have the potential to effectively affect pre-school learners in a school environment (Omidire et al. 2018).

Aside from that, students who have difficulty in the classroom may benefit by engaging in a variety of learning opportunities outside. Their social development is anticipated to increase when they collaborate and search for knowledge throughout the outdoor learning process (Bjorge et al. 2017). Furthermore, outdoor learning has been shown to improve classroom behavior by improving children's enthusiasm to study and by helping them to gain confidence. In accordance with previous study findings, outdoor learning has a favorable influence on children's wellbeing, thereby assisting their psychological development. Omidire et al. (2018) also identified that children's social skills increased as children were keener to work together and had a healthy competition with each other. Their overall mood has also increased due to the positive reinforcement from their peers and teachers. This can also be supported by Rymanowicz et al.'s (2020) findings that, after participating in the outdoor program, the children showed significant behavioral changes, such as an increased interest in nature, adventure, exploration, and animals. The children were more engaged in conversation, and their communication skills improved as they were inclined to be more inquisitive about their surroundings, especially that related to nature. Hence, this also allowed the children to be more connected with their family after the program as it increased the time they spent with their family outdoor through gardening (Rymanowicz et al. 2020).

Although few studies showed no correlation between the outdoor environment and children's wellbeing (n=1) (Mygind et al. 2021) and that outdoor play has no influence on children's mental, emotional, and attitudinal bio-affinity (n=1) (Omidvar et al. 2019), most of the research collected in this scoping review showed that outdoor play positively impacts children's wellbeing.

Conclusion

This review evaluated the extent of literature on the influence of outdoor play on children's wellbeing by analysing numerous published studies that focus on the employment of outdoor play on children. The study provides an overview of the potential of outdoor play that benefits children's wellbeing, including their social, emotional, cognitive, and physical development. However, the data provided were limited, and there was minimal comparability between the outcome variables studied. Some researches were primarily focused on children's preferred play or the perceptions of teachers and parents only. Nevertheless, the information gained from this scoping review is still useful for this study.

The existing articles that were found through the review provide an overview of not just the influence of outdoor play on children's wellbeing, but also the types of outdoor play elements that are employed and the obstacles that come with implementing them. This study is beneficial for researchers and educators as it allows them to create appropriate activities and environments during outdoor play to ensure that it will benefit the children holistically. However, it is apparent that, despite the current increase of interest in this topic, it is still not widely researched in the region of Asia, especially in Malaysia. Hence, it will be of great value if, in the future, more research on the impact of outdoor play on children's wellbeing especially that focuses on the psychosocial aspect of it, is done in the context of Asia as each region may have differences that can affect the result of the study.

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References

Almers E, Askerlund P, Samuelsson T, & Waite S (2021) Children's preferences for schoolyard features and understanding of ecosystem service innovations–a study in five Swedish preschools. Journal of Adventure Education and Outdoor Learning 21 (3):230-246. https://doi.org/10.1080/14729679.2020.1773879.

Arksey H & O'Malley L (2005) Scoping studies: towards a methodological framework. International journal of social research methodology 8 (1):19-32. https://doi.org/10.1080/1364557032000119616.

Bay DN (2020) Examining the plays that preschool children prefer and the characteristics shaping them using draw and tell technique. The European Journal of Educational Sciences 7 (2):91-115. https://doi.org/10.19044/ejes.v7no2a7.

Becker C, Lauterbach G, Spengler S, Dettweiler U, & Mess F (2017) Effects of regular classes in outdoor education settings: A systematic review on students' learning, social and health dimensions. International Journal of Environmental Research and Public Health 14 (5):1-20. https://doi.org/10.3390/ijerph140Research.

Bento G & Dias G (2017) The importance of outdoor play for young children's healthy development. Porto Biomedical Journal 2 (5):157-160. http://dx.doi.org/10.1016/j.pbj.2017.03.003.

Best M, Dickinson C, Hugstad-Vaa Leer C, & Kalina M (2017) The impact of implementing core curriculum in an outdoor classroom on primary-aged students' academic achievement. Thesis, Sophia: The St. Catherine University, Minnesota. [Accessed 13 December 2021]. https://sophia.stkate.edu/maed/233.

Bjorge S, Hannah T, Rekstad P, & Pauly T (2017) The behavioral effects of learning outdoors. Thesis, Sophia: The St. Catherine University, Minnesota. [Accessed 13 December 2021]. https://sophia.stkate.edu/maed/232.

Burke A, Moore S, Molyneux L, Lawlor A, Kattwitz T, Yurich G, Sanson R, Andersen O, & Card B (2021) Children's wellness: Outdoor learning during COVID-19 in Canada. Education in the North 28 (2):24-45. https://doi.org/https://doi.org/10.26203/p99r-0934.

Cameron M & McGue S (2019) Behavioral effects of outdoor learning on primary students. Thesis, Sophia: The St. Catherine University, Minnesota. [Accessed 13 December 2021]. https://sophia.stkate.edu/maed/297.

Fathirezaie Z, Abbaspour K, Badicu G, Sani SHZ, & Nobari H (2021) The effect of environmental contexts on motor proficiency and social maturity of children: An ecological perspective. Children 8 (2):157. https://doi.org/10.3390/children8020157.

Gil-Madrona P, Martínez-López M, Prieto-Ayuso A, Saraiva L, Vecina-Cifuentes J, Vicente-Ballesteros T, Moratilla-López R, & López-Sánchez GF (2019) Contribution of public playgrounds to motor, social, and creative development and obesity reduction in children. Sustainability (Switzerland) 11 (14):3787. https://doi.org/10.3390/su11143787.

Hinkley T, Brown H, Carson V, & Teychenne M (2018) Cross sectional associations of screen time and outdoor play with social skills in preschool children. PLoS ONE 13 (4):1-15. https://doi.org/10.1371/journal.pone.0193700.

Hizwan M, Sukri M, & Yusri (2017) Meta-Analysis study of teacher issues on higher order thinking skills in Malaysia. World Applied Sciences Journal 35 (12):2520-2523. https://www.idosi.org/wasj/wasj35(12)17/2.pdf.

Joginder Singh S, Mohd Azman FNS, Sharma S, & Razak RA (2021) Malaysian Parents' Perception of How Screen Time Affects their Children's Language. Journal of Children and Media 15 (4): 588-596. https://doi.org/10.1080/17482798.2021.1938620.

Malaysian Mental Health Association (2019) Mental health handbook. [Accessed 15 December 2021] https://www.myhealthmylife.com.my.

Marchant E, Todd C, Cooksey R, Dredge S, Jones H, Reynolds D, Stratton G, Dwyer R, Lyons R, & Brophy S (2019) Curriculum-based outdoor learning for children aged 9-11: A qualitative analysis of pupils' and teachers' views. PLOS ONE 14 (5):1-24. https://doi.org/10.1371/journal.pone.0212242.

McCree M, Cutting R, & Sherwin D (2018) The hare and the tortoise go to forest school: Taking the scenic route to academic attainment via emotional wellbeing outdoors. Early Child Development and Care 188 (7):980-996. https://doi.org/10.1080/03004430.2018.1446430.

Ministry of Education (2013) Malaysia education blueprint 2013-2025. Putrajaya: Ministry of Education Malaysia, Government of Malaysia.

Mygind L, Elsborg P, Schipperijn J, Boruff B, Lum JA, Bølling M, Flensborg-Madsen T, Bentsen P, Enticott PG, & Christian H (2022) Is vegetation cover in key behaviour settings important for early childhood socioemotional function? A preregistered, cross-sectional study. Developmental science 25 (3):e13200. https://doi.org/10.1111/desc.13200.

Omidire MF, Ayob S, Mampane RM, & Sefotho MM (2018) Using structured movement educational activities to teach mathematics and language concepts to preschoolers. South African Journal of Childhood Education 8 (1):2223-7682. https://doi.org/10.4102/sajce.v8i1.513.

Omidvar N, Wright T, Beazley K, & Seguin D (2019) Investigating nature-related routines and preschool children's affinity to nature at halifax children's centers. The International Journal of Early Childhood Environmental Education 6 (2):42-58. https://files.eric.ed.gov/fulltext/EJ1225646.pdf.

Quibell T, Charlton J, & Law J (2017) Wilderness schooling: A controlled trial of the impact of an outdoor education programme on attainment outcomes in primary school pupils. British Educational Research Journal 43 (3):572-587. https://doi.org/10.1002/berj.3273.

Riazi NA, Wunderlich K, Gierc M, Brussoni M, Moore SA, Tremblay MS, & Faulkner G (2021) You can't go to the park, you can't go here, you can't go there: Exploring parental experiences of COVID-19 and its impact on their children's movement behaviours. Children 8 (3):219. https://doi.org/10.3390/children8030219.

Rymanowicz K, Hetherington C, & Larm B (2020) Planting the seeds for nature-based learning: Impacts of a farm-and nature-based early childhood education program. The International Journal of Early Childhood Environmental Education 8 (1):44-63. https://files.eric.ed.gov/fulltext/EJ1280494.pdf.

Sando OJ (2019) The outdoor environment and children's health: a multilevel approach. International Journal of Play 8 (1):39-52. https://doi.org/10.1080/21594937.2019.1580336.

Soliman ES, Mahdy RS, Fouad HA, Abbas RA, & Fayed (2020) A Multiple risk factors affecting childhood psychosocial dysfunction in primary school Egyptian children. Middle East Current Psychiatry 27 (16):1-9. https://doi.org/10.1186/s43045-020-00023-2.

Tee MY, Samuel M, Nor NBM, & Renuka VSH (2018) Classroom practice and the quality of teaching: Where a nation is going? Journal of International and Comparative Education 7 (1):17-33. https://doi.org/10.14425/jice.2018.7.1.17.

Twenge JM & Campbell WK (2018) Associations between screen time and lower psychological well-being. Preventive Medicine Reports 12:271-283. https://doi.org/10.1016/j.pmedr.2018.10.003.

Wainwright N, Goodway J, Whitehead M, Williams A, & Kirk D (2020) Playful pedagogy for deeper learning: exploring the implementation of the play-based foundation phase in Wales. Early Child Development and Care 190 (1):43-53. https://doi.org/10.1080/03004430.2019.1653551.

Webb L (2018) The Effect of purposeful movement in the garden on attention and focus in the primary montessori classroom. Thesis, Sophia: The St. Catherine University, Minnesota. [Accessed 13 December 2021]. https://sophia.stkate.edu/maed/249.

World Health Organisation (2019) Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age. World Health Organisation. [Accessed 13 December 2021]. www.apps.who.int/iris/handle/10665/311664.