

Perceptions of Daycare Providers about Climate-sensitive Care for Children's Physical Well-being

By

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A thesis submitted to Brac Institute of Educational Development in partial fulfillment
of the requirements for the degree of
Master of Science in Early Childhood Development

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BRAC University
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Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing my degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Ethics Statement

Title of Thesis Topic: Perceptions of Daycare Providers about Climate-sensitive Care for Children's Physical Well-being

Student name: Rabia Basri Tanya

1. Source of population

Daycare providers (owners/managers) from formal private daycare centers in Dhaka.

2. Does the study involve (yes, or no)

- a) Physical risk to the subjects: *No*
- b) Social risk: *No*
- c) Psychological risk to subjects: *No*
- d) discomfort to subjects: *No*
- e) Invasion of privacy: *No*

3. Will subjects be clearly informed about (yes or no)

- a) Nature and purpose of the study: *Yes*
- b) Procedures to be followed: *Yes*
- c) Physical risk: *N/A*
- d) Sensitive questions: *Yes*
- e) Benefits to be derived: *Yes*
- f) Right to refuse to participate or to withdraw from the study: *Yes*
- g) Confidential handling of data: *Yes*
- h) Compensation and/or treatment where there are risks or privacy is involved: *Yes*

4. Will signed verbal consent be required (yes or no)

- a) from study participants: *Yes*
- b) from parents or guardian: *N/A*
- c) Will precautions be taken to protect the anonymity of subjects? *Yes*

5. Check documents being submitted herewith to the Committee:

- a) Proposal: *Yes*
- b) Consent Form: *Yes*
- c) Questionnaire or interview schedule: *Yes*

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Abstract

This qualitative study explores how daycare providers in Dhaka, Bangladesh, perceive and practice climate-sensitive care in relation to children's physical well-being.

Recognizing the increasing vulnerability of young children to climate-induced health risks, the study aims to understand how caregivers adapt their daily practices in response to climate-induced environmental stressors, such as extreme heat, air pollution, and the risk of vector-borne diseases. Data were collected through six in-depth interviews (IDIs) and three observational sessions conducted in selected private daycare centers. Thematic analysis revealed that while most providers were unfamiliar with the formal concept of “climate-sensitive care,” they intuitively implemented a range of adaptive strategies, including hydration management, ventilation control, mosquito prevention, and activity adjustments during high temperatures. These practices were driven largely by experience rather than formal knowledge, training, or policy guidance. The findings highlight a gap between informal caregiving responses and systemic institutional support. This study underscores the urgent need to integrate structured capacity building training, infrastructure standards, and policy frameworks into Bangladesh’s childcare sector to enhance resilience and ensure equitable child physical well-being in a changing climate.

Keywords: climate change, climate-sensitive care, perception, daycare, childcare, physical wellbeing

Dedication

To my late mother, my first teacher and lifelong source of wisdom, whose love and guidance laid the foundation for my education and values. To my beloved life partner, my greatest strength in life, whose unwavering support and immense encouragement have anchored me throughout this journey. To my two beautiful children, who teach me patience and help me grow every day. Through them, I could deeply connect with the heart of early childhood development. And to my supporting staff, an often unrecognized but invaluable presence in every household, whose quiet dedication and shared responsibilities made it possible for me to devote myself to this work fully. I dedicate this thesis with love and gratitude.

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List of Acronyms

AC	Air Conditioner
ECD	Early Childhood Development
CCTV	Closed-Circuit Television
COVID-19	Coronavirus Disease 2019
IPS	Instant Power Supply (backup battery)
NGO	Non-Governmental Organization

Chapter I: Introduction and Background

Introduction

In the words of Dr. Tedros Adhanom Ghebreyesus, the Director-General of the World Health Organization, "young children need a safe, secure, and loving environment, with the right nutrition and stimulation from their parents or caregivers." This statement is particularly applicable during the early years of a child's life, a time of rapid growth and development that forms the foundation for their future well-being (Widjayatri et al., 2023). Ensuring a nurturing environment for children, not only in the comfort of their homes but also in formal and informal care settings, such as daycare centers, is of paramount importance.

A daycare center is a place where children are cared for, in the absence of their parents (Tonmoy & Islam, 2021). These daycares, where they spend significant time away from home, play a crucial role in providing an environment that supports both their immediate and long-term well-being. Unfortunately, this vital environment and the well-being of children are threatened by one of the most pressing issues of our time, "climate change". Because of climate change, the world has experienced increasingly unpredictable weather patterns, rising sea levels and ocean temperature, biodiversity loss, agricultural disruptions, habitat shifts, and coastal erosion in recent years (Zhao et al., 2022). The effects of climate change are profound and far-reaching, impacting human lives across the globe, especially in terms of physical well-being, with serious consequences for global health (Otokpa et al., 2024). Sadly, one of the most disguised and terrifying impacts of climate change is its effect on children, who are particularly vulnerable due to their increased time outdoors, developing bodies, and reliance on caregivers (Cogen et al., 2024). To add, the impact of it is faced by

many countries, but it is severely impacting Asia (Ahmed & Khan, 2023). Among these nations, Bangladesh, with its deltaic geography, stands among the most vulnerable, as floods wreak havoc on settlements, agriculture, infrastructure, and livelihoods (Hossain et al., 2020). These factors paint a grim picture that climate change is not just a global issue; it is a local crisis with dire consequences for the physical well-being of young children. Sadly, the environment of daycare centers can expose children to various climate-induced health risks, particularly those affecting their respiratory health (Nabila & Mannan, 2023). It is imperative for daycare providers to be vigilant and knowledgeable, especially when the risks of environmental stressors increase (Otto & Thieken, 2024).

This is where the concept of “Climate-Sensitive Care” becomes crucial, which addresses these challenges by integrating climate change considerations into daycare practices to protect children, reduce risks, and build resilience (INEE, 2023). As per policies, Bangladesh is currently globally leading in climate change adaptation and disaster preparedness, but it still falls short in integrating context-specific, climate-sensitive policies into daycare centers (World Bank, 2022; Chowdhury et al., 2020). In this situation, it becomes important to explore how providers practice climate-sensitive care without formal guidelines. Their perceptions of climate change, its risks, and the ways they integrate climate-sensitive practices matter because their knowledge directly shapes the care children receive.

This research aims to explore daycare providers' perceptions of climate-sensitive care, their experiences, the effects on children, and the adapted practices they employ to safeguard children's physical well-being. These insights will strengthen current policies and practices. The rest of the chapter outlines the problem statement, purpose, significance, justification, research questions, and key operational definitions.

Statement of the Problem

Despite increasing recognition of climate change as a global health crisis, its specific impact on the physical well-being of young children in daycare settings remains inadequately addressed.

Elaborately, the study seeks to address several key problems. First, climate change undermines children's right to safe environments by increasing extreme weather events, heatwaves, and poor air quality, which disrupts children's well-being and pose health risks in childcare settings, such as daycares, unless adaptation measures are implemented. Moreover, there is a constant risk of exposure to multiple health issues in the daycare's indoor environment (Nabila & Mannan, 2023). Second, Nabila & Mannan (2023) argue that overcrowded rooms, inadequate cooling, and staff juggling hydration, rest, and health checks without written protocols undermine the stability of the daycare system, leading to uneven quality across different daycare centers. Third, existing childcare frameworks in Bangladesh lack explicit climate-related operational standards, leaving providers without clear guidance on how to protect children from climate stressors. The Child Daycare Centre Act 2021, aimed at improving daycare quality, faces challenges in implementation and caregiver training, particularly in climate-sensitive care, leaving many providers undertrained and unsupported (Rahman et al., 2022). Fourth, global evidence shows that daycare providers often have misconceptions and a limited understanding of environmental and climate-related risks to children's health (Koester et al., 2021; Hebe, 2020). However, in Bangladesh, particularly in urban areas, there is no recent data on daycare providers' knowledge of climate-sensitive care. This knowledge gap poses a critical challenge to the well-being of children in daycare settings (Koester et al., 2021).

To conclude, the care provided by responsible providers directly impacts children's well-being and development (Helmerhorst et al., 2023). This is why understanding daycare providers' perceptions is a crucial first step in ensuring children's well-being within these centers. Providers may have little knowledge about climate change and its stressors that affect the daycares and the children within them. From the providers' perspective, without training, it is hard to judge when to modify routines to protect children's wellbeing (Islam & Khan, 2015). Also, they may be uncertain about when and what strategy to apply to ensure climate-sensitive care. This study will explore the current knowledge and practices that will help identify actionable steps for centers and policymakers to protect children's well-being during climate stressors.

Purpose of the Study

The purpose of this study is to delve into the existing perceptions and awareness of daycare providers regarding climate-sensitive care that is connected to children's physical well-being. The focus is on day-to-day practice in formal private centers that care for children aged six months to six years. As climate-related stressors become more prevalent, it is crucial to understand how those providers are taking responsibility for young children's care.

Another major aim is to explore the providers' lived experiences with climate-related stressors, such as extreme heat and poor air quality, and their perceptions of the effects of these stressors on children's physical health. Furthermore, this study is designed to explore their day-to-day strategies and practices that work as coping mechanisms, mitigating the harmful effects of climate change on children's health. It might potentially address the supporting factors and barriers alongside.

Significance and Justification of the Study

While the effects of climate change are global, Bangladesh is among the most vulnerable countries. In consequence, children in Bangladesh face an 'extremely high risk', particularly being vulnerable to heat-related illnesses such as heatstroke and dehydration-induced diarrhea (UNICEF, 2021). Moreover, Dhaka is at risk of severe adverse health effects from flooding, heatwaves, and air pollution (Gray, 2018).

Young children are highly sensitive to these stressors. They rely on adults to notice risks early and act fast (Sultana et al., 2024). Many children now spend long hours in daycares while their parents work. What providers know and do in these centers matters for children's safety every single day.

Additionally, Behbehani et al. (2024) suggest there is a knowledge gap regarding the health impact of center-based childcare in low- and middle-income countries. Another study states that Bangladeshi daycare centers offer low-quality services, pay inadequate attention to health, nutrition, and social issues, and lack sufficient capacity (Islam & Khan, 2015). These indicators suggest that daycare providers in Bangladesh are operating these centers with limited knowledge of climate-sensitive care.

The two factors mentioned above, health vulnerability due to geographical location and the knowledge gap, underscore the pressing need to better understand daycare providers' perceptions of climate-sensitive care. If these issues are not addressed, the consequences could be detrimental to children's health and well-being. Without proper awareness, providers may fail to implement necessary measures, resulting in long-term health issues.

The study's value is practical. The findings will not merely be insights in a report; they will serve as blueprints for a better future in various ways. The findings can help plan targeted training to address the knowledge gap among providers regarding climate-sensitive care. This will enable providers to prepare better and strategize necessary steps to ensure children's physical well-being.

The study also has policy relevance. It can influence policy decisions by providing evidence to support climate adaptation strategies in national daycare policies, helping policymakers develop targeted interventions and regulations for climate resilience. It can specify the standards that providers should incorporate and follow to mitigate risks of environmental hazards and stressors. It will also help them to form internal policies specifically addressing climate-sensitive care.

Additionally, it is hoped that the study will contribute to the current research by generating new information that fills the gap in the existing body of knowledge, particularly in Bangladesh. It offers context-specific insights on climate and child health in daycares, a topic with limited local data. In short, it turns a complex problem into actionable guidance that centers can use.

Finally, the results may contribute to the childcare sector, and eventually add value to the Early Childhood Development (ECD) sector by helping daycare providers create safer, more resilient environments for future generations.

Research Topic and Questions

The topic of this research is to explore how daycare providers in Dhaka, Bangladesh, perceive and practice climate-sensitive care concerning children's physical well-being.

The study will answer the following questions -

- i. How do daycare providers understand the concept of climate-sensitive care in relation to the children's physical well-being?
- ii. What experiences have daycare providers had with climate-related stressors (e.g., heatwaves, sustained poor air quality) that have affected the care and physical well-being of children?
- iii. What strategies and practices do the providers implement to support children's physical well-being during climate-related stressors?

Operational Definitions

Perception: McDonald (2012) defined, perception is an individual's unique way of viewing a phenomenon, achieved through the processing of sensory stimuli (vision, hearing, touch, taste, and smell) and shaped by memory and past experience, leading to comprehension that can influence subsequent thought or action. A standard way of defining perception is "how we see things." In this study, the term 'perception' is defined as the viewpoint, knowledge, and understanding of the daycare providers about climate-sensitive care of children's physical wellbeing.

Daycare Provider: A World Bank Report refers to a daycare provider as the individual in charge of providing education and care for children in a home, center, or other improvised family arrangement setting (Rahman et al., 2022). Daycare providers in this study are individuals in owner or managerial positions who are professionally responsible for decision-making, policy-making, and providing care and education to children aged six months to six years in formal and private daycare settings. Typically, staff who are directly or indirectly involved with the children (e.g., caregivers, cleaners, accountants) work under the provider's supervision.

Children: Santrock (2021) stressed that children are developing human beings in the early stages of life whose thinking, behavior, emotional regulation, and identity are shaped through continuous interaction between biological maturation and social environments. This definition emphasizes biological immaturity and care dependency. In this study, children are defined as young human beings in early childhood (ages six months to six years) whose physical health and bodily functioning are directly shaped by biological development and environmental conditions within daycare settings.

Physical Well-being: WHO (2005) defines health as complete physical, mental, and social well-being, not just the absence of disease. Physical well-being, as emphasized by Pressman et al. (2017), refers to maintaining bodily health and functional capacity across daily life. In this study, children's physical well-being is defined as their day-to-day bodily comfort and functional health in daycare, including hydration, thermal comfort, ease of breathing, energy, absence of acute illness, and the ability to participate usually in daily activities despite climate-related stressors.

Climate-sensitive Care: The term climate sensitive is used in the scientific field, which technically means how strongly Earth's temperature reacts to greenhouse gas increases (IPCC, 2021). From a human perspective, climate sensitivity means to what extent weather and climate changes affect an individual's health, comfort, and daily life. This term is linked with a wide range of issues in the literature, such as climate-sensitive health risks, diseases, hazards, and household vulnerability (Yenew et al., 2025; Moreira et al., 2020; Emrich & Cutter, 2011; Kosmowski & Sultan, 2016). This present study used the term in the context of "care" for the children, hence it is called "Climate-sensitive Care". Islam and Hasan (2023) referred to climate-sensitive care as

the adaptation of caregiving practices to support the well-being of young children in the face of climate-related risks such as extreme heat, pollution, and disease. For this study, climate-sensitive care is defined as the deliberate adaptation of daily daycare routines, environments, and caregiving practices to protect and promote children's physical well-being in the face of climate-related environmental stressors.

Chapter II: Review of Literature

Context of Daycare Services in Bangladesh

In Bangladesh, daycare centers have evolved from informal arrangements to structured institutions, reflecting the nation's socio-economic transformations. For a long time, children were cared for within large extended families, where parents, grandparents, and relatives all helped raise the children. Nevertheless, as the country rapidly urbanized, modernized, and developed economically, people preferred nuclear families (Sultana et al., 2024). Simultaneously, the female workforce has grown significantly, with the country's female labor force participation rising from 4% in 1974 to 36% in 2019 (Mamun & Hoque, 2022). These changing social conditions in the twentieth century created a need for daycare centers for working mothers, and then the child daycares were introduced (Islam & Khan, 2015; Shafiullah, 2024).

The government's response to the growing needs has evolved significantly over the last three decades, transitioning from piecemeal mandates to a more comprehensive legal framework. At the very beginning, the Ministry of Social Welfare took an initial step, launching daycares in two phases in 1991 (Naher, 2023). Afterwards, the 1995 labor laws stipulated that organizations employing at least 25 women were required to set up daycare centers, and this threshold was later changed to 40 women under the National Labor Act of 2006 (Islam & Khan, 2015). Besides, the country experienced

the establishment of government-run centers, Non-governmental Organization (NGO) operated facilities, and a growing number of private commercial daycares, each serving a different segment of the population.

However, Islam and Khan (2015) further note that the lack of a formal framework in these laws has led to challenges, including inconsistent care quality, inadequate facilities, limited accessibility, and poor service quality. Later, recognizing the importance of structured daycares, the government's most significant legislative development was the recent enactment of the Child Daycare Centre Act, 2021. The act was passed to enable daycare needs. Still, there is a gap in detailed policy implementation and caregiver training, particularly for climate-sensitive care, leaving many daycare providers undertrained and unsupported (Rahman et al., 2022).

Currently in Bangladesh, daycares are typically home-based, center-based, or community-based. Center-based facilities are mainly concentrated around Dhaka and include various types, such as government daycares, privately owned daycares, factory-based on-site daycares run by RMG, and community-based centers within local communities, mostly operated by NGOs like BRAC and Save the Children (Helmerhorst et al., 2023). The government operates 119 daycare centers, with an additional 20 under the Ministry of Social Welfare. Plans are underway to establish 60 new facilities to support working mothers (Tajmim, 2023). Nonetheless, the demand for daycares is still growing, with most working mothers in Dhaka depending on daycares during office hours (Nabila & Mannan, 2023; Shaulin, 2024). Recent studies indicate that many daycares still lack quality care, raising concerns about children's safety and well-being (Nabila & Mannan, 2023). Uddin et al. (2021) highlight that most daycare facilities in Dhaka are congested and poorly ventilated due to a lack of

equipment, a lack of shade and outdoor activities, and poor access to clean water, which increases the vulnerability of children to climate stressors.

Nexus of Climate Change, Related Risks, and Daycare Provision

Protecting children's physical well-being demands an understanding of how climate change and its related risks threaten daycare environments and their children. This section explores existing evidence on what climate change is, how it operates, its impact on children's physical well-being, and why its effects are especially consequential for daycare centers and the children in their care.

Climate Change and Its Core Environmental Stressors: IPCC (2021) defined climate change as a long-term shift (over decades or more) in the Earth's climate system or state, detectable through changes in the mean and/or variability of its properties, caused by direct or indirect human activities. In simpler terms, climate change refers to the long-term alteration of the Earth's usual weather patterns, such as hotter temperatures, changes in seasons, and increasingly unpredictable weather. This alteration acts as a profound risk multiplier, imposing major threats worldwide that manifest as core environmental stressors (World Bank, 2022). These stressors include, but are not limited to, the rising temperatures, frequent heatwaves, shifting weather patterns, altered rainfall, tropical storms, persistent droughts, widespread flooding, sea level rise, glacier and ice-sheet loss, and more frequent and severe extreme weather events (World Bank, 2022; IPCC, 2021)

In a country like Bangladesh, which is low lying, densely populated, and vulnerable to climate change, these global trends result in severe local risks (ICCCAD, 2024).

Karmakar (2019) mentions different types of disasters that hit Bangladesh frequently, like cyclones that are tropical and associated storm surges, thunderstorms, floods and flash floods, drought, cold waves and heat waves, heavy and erratic rainfall, etc. All

these exacerbate coastal flood and drought risk, and land loss (Islam, 2025; ICCCAD, 2024). Dhaka South City Corporation (2024) depicts the critical scenario of the capital, Dhaka, by mentioning that Dhaka North and South are already facing climate change impacts, such as notably rising temperatures, frequent urban flooding, and a rapid rise in vector-borne illnesses. The report further notes that daytime urban heat in Dhaka increased from 2.20°C to 3.18°C between 2000 and 2019, posing serious health risks to residents.

Existing studies clearly indicate that climate change is already driving widespread environmental disruption through multiple climate attributes. Public awareness of these attributes is essential because, without it, environmental damage will continue to accelerate, and vulnerable children will be affected more severely.

Impact of Climate Change on Children's Physical Well-being - Global and

Bangladesh Context: For millions of children today, the air they breathe, the water they drink, and the ground they play on are growing increasingly unsafe as climate change casts a dark shadow over their physical well-being. They are not simply "little adults", as their developing bodies, faster breathing rates, and higher fluid intake per unit of body weight make them uniquely vulnerable to environmental hazards (Etzel, 2020).

Numerous studies have found a strong link between heat stress and mortality in young children. Geruso et al. (2018) noted that very hot and humid days in 53 countries across Africa, Asia, and Latin America had a significant effect on infant mortality. Also, there is a strong association between higher temperatures and vector-borne diseases among children (Rocque et al., 2021; Kulkarni et al., 2022). Likewise, shifting climatic trends may cause disease-carrying insects to spread further, leading

to an increase in infectious diseases like dengue fever and malaria (Yadav & Upadhyay, 2023). The Health Effects Institute (2024) reports that children aged 5 to 14 are disproportionately affected by asthma linked to air pollution worldwide.

Flooding in Cambodia has put 900,000 people, especially young children, at greater risk of waterborne diseases (UNICEF, 2021). Children in high-risk urban dwellings face a higher risk of diarrheal diseases and respiratory-related infections (Konkel, 2019).

According to Germanwatch's 2021 Global Climate Risk Index, Bangladesh is ranked seventh among the most affected countries worldwide by climate change (Eckstein et al., 2022). Extreme heat is an immediate threat in our context. A report by UNICEF states that during countrywide heatwaves in Bangladesh, children remain in a vulnerable position for heat-related illnesses, including heatstroke and dehydration (UNICEF, 2021). Rising temperatures cause heat exhaustion, asthma, dehydration, and long-term health complications (Schapiro et al., 2024).

Air pollution is another major pathway that harms children's health in Bangladesh. Increased air pollution leads to higher incidences of respiratory diseases among children (World Bank, 2022). In 2021, over 19,000 children in Bangladesh died from illnesses related to air pollution, including asthma and pneumonia (The Health Effects Institute, 2024). Climate-induced flooding and heavy rainfall outbreaks water-borne diseases, especially diarrhoea and cholera, which heavily impact children in Bangladesh, particularly in Dhaka (Hashizume, 2011). Vector-borne disease adds a fourth pathway that touches many families each year (Sharif et al., 2024). The 2023 dengue outbreak was the largest on record in Bangladesh and included a heavy pediatric burden with high fatality in the youngest group (Sharif et al., 2024). In coastal areas, rising water salinity threatens children's health by increasing the risk of

waterborne diseases and related conditions, such as hypertension and diarrhea (ICCCAD, 2024). In 2021, over 19,000 children in Bangladesh died from illnesses related to air pollution, including asthma and pneumonia (The Health Effects Institute, 2024).

To conclude, across these studies, a simple pattern is clear for early childhood that children are at more risk than adults to heat, polluted air, unsafe water, and shifting vectors, and these exposures interact with each other in daily life. These are disrupting the children's physical well-being by putting their health and nutrition at risk.

Climate Change Risks on the Daycare System and its Children: The literature suggests that climate change poses escalating risks to daycare systems and the children who depend on them. As global temperatures rise and extreme heat becomes more frequent and intense, many childcare facilities, particularly those lacking adequate ventilation, insulation, or cooling systems, become sites of heightened risk. Children are physiologically vulnerable to heat stress, and heat exposure within daycare centers can compromise their health, comfort, and safety (Etzel, 2020; Schapiro et al., 2024). Prolonged heat may worsen air quality, further stressing children's respiratory health during daycare hours. Moreover, erratic rainfall, flooding, and deteriorating air quality increasingly disrupt children's environments (such as daycare environments) worldwide, heightening risks of dehydration, respiratory illnesses, and infectious disease transmission (Geruso et al., 2018; Rocque et al., 2021; Kulkarni et al., 2022). These physical health risks not only require immediate attention but also may lead to system-wide impacts and additional burdens on providers to manage health-related emergencies, ultimately compromising the entire daycare environment.

Ng (2024) reported that, in Bangladesh, the April–May 2024 heatwaves (reaching up to 42°C) placed children at significant risk of dehydration and heatstroke. This suggests that during extreme heat events, indoor daycare environments and the children and staff within them face serious health threats. Additionally, Bangladesh’s low-lying geography is a primary driver of its vulnerability to tropical cyclones and monsoon flooding (UNICEF, 2021; World Bank, 2022). Daycare centers in such high-risk areas, which are especially vulnerable to flooding, can be forced to close when buildings become inundated or access routes are blocked.

Furthermore, IQAir (2024) reported that Dhaka ranked as the second most polluted city globally in 2024, indicating extremely hazardous air conditions. Children commuting daily from home to daycare inhale contaminated air, placing them under continuous health risk. Studies also show that many daycares operate in congested settings with inadequate ventilation, limited access to clean water, and poor indoor air quality, conditions that intensify children’s exposure to climate-related hazards (Uddin et al., 2021; Nabila & Mannan, 2023). These environmental deficits are rarely monitored or addressed in Bangladesh’s childcare or daycare guidelines (Chowdhury et al., 2020; Rahman et al., 2022).

Lastly, because childcare centers vary widely in structural resilience and available resources, climate risks are unevenly distributed; under-resourced or poorly built centers are likely to suffer disproportionately (Uddin et al., 2021; Nabila & Mannan, 2023). Without proactive adaptation, including building upgrades, climate-sensitive design, and emergency planning, daycare centers may become central points of vulnerability within the early childhood care system as climate impacts intensify (Chowdhury et al., 2020; Rahman et al., 2022; INEE, 2023).

Providers' Knowledge and Practice of Climate-sensitive Care

Current literature suggests that, specifically regarding climate change, providers' awareness is growing globally, but a knowledge gap persists. A study of 36 Illinois providers' knowledge of environmental influences on children's health found that providers had limited understanding of environmental hazards and did not view these exposures as significant risks to children (Koester et al., 2021). Hebe (2020) highlights that many of the 15 South African caregivers held misconceptions, such as confusing ozone depletion with global warming, underscoring the need for a better understanding of climate change and its impacts. A study of 181 daycare staff in Munich found that daycare providers and caregivers had strong awareness of climate change and its related health risks to children (Lehmann et al., 2023). The researcher further emphasizes the necessity for targeted education and training for daycare providers to enhance their understanding and capability in addressing climate-induced health challenges.

In terms of practices in real life, research indicates experts are exploring climate-sensitive care for children. German childcare centers are proactively exploring how to cope with increasingly hotter days through research (Otto & Thieken, 2024). However, Lehmann et al. (2023) confirmed that, despite a strong perception of climate-related health risks, daycare centers often lack adequate protective and adaptation measures. However, Koester et al. (2021) suggest that effective communication and education between providers and parents could improve the overall awareness and protective measures for children's health in daycare settings.

In the specific context of Bangladesh, recent data on daycare providers' knowledge and practices regarding climate-sensitive care are scarce, largely due to limited research. Furthermore, local evidence on provider training and climate-sensitive routines inside Bangladeshi centres is limited in the published record. Hence, there is an urgent need to explore their current situation. Linking early education with climate services can improve providers' awareness by turning forecasts into room-level decisions and alerts (Molina, 2025).

Daycare Providers' Role and Its Relation to Climate-sensitive Care

Daycare providers, including owners and directors, are the people who keep a centre running hour by hour and set the tone for safe daily care (Naher, 2023). They are central to a daycare center's success, and their leadership and daily performance are key to the center's functioning (Cascio, 2022). Their job is multifaceted, involving the observation of teacher-child interactions, giving feedback to staff, and communicating with parents (Andreyeva et al., 2021). They also manage the business side, handling finances and payroll along with making important decisions regarding daily operations, educators, and children's participation and accommodation (Galvan-Flores, 2024; Garrity et al., 2019). Moreover, they translate system goals into practice when the government plans to expand centres in city areas (Islam, 2024).

In addition, Dinkel et al. (2022) highlight that family engagement is a collaborative process that fosters strong, positive relationships between parents and providers to ensure a child's optimal growth. In fact, providers need to maintain reliability and consistency in their care, as parents rely on consistent routines and trust the providers (Tonmoy & Islam, 2021).

Above all, as climate-sensitive care becomes increasingly important, providers act as ‘front-liners’ in protecting children’s well-being from the harmful effects of climate change on their environment (Gemmell et al., 2023). In climate-sensitive care, providers act as early risk detectors, identifying heat, poor air quality, or vector threats and adjusting plans quickly (INEE, 2023). Recent heatwave cases show that providers must prepare buildings and routines before extreme weather arrives (Malmquist et al., 2021).

To sum up, providers not only offer basic services but also serve as key decision-makers contributing to a child’s overall well-being. In Bangladesh, one of the most climate-vulnerable countries, climate-sensitive care can recognize young children's heightened vulnerability to environmental hazards and equip providers to manage these risks. Since providers’ decisions directly shape children’s daily health, their understanding and perception of climate risks strongly influence providers’ caregiving practices (Lehmann et al., 2023).

Chapter III: Methodology

Research in the modern era requires a systematic and well-structured approach to ensure credibility and reliability. Accordingly, the methodology chapter outlines how the study was conducted, including the research approach, participants, study site, sampling procedure, data collection methods, data management and analysis, research tools, ethical considerations, and limitations.

Research Approach

This research aimed to explore daycare providers' perceptions of climate-sensitive care and its implications for early childhood well-being in urban daycare facilities.

This required rich descriptions of participants' lived experiences and attention to meaning within context. Among different research approaches, qualitative research is well-suited for gaining a deep and comprehensive understanding of an issue, as it allows researchers to explore detailed experiences and viewpoints related to the research problem (Creswell & Poth, 2023). Considering the nature of this study, a qualitative research approach with descriptive and thematic emphasis was adopted to capture the core of participants' experiences and generate rich data for analysis.

Research Site

The research took place in six different private daycare centers located in Gulshan, Dhanmondi, and Uttara, within Dhaka city. These areas are considered middle and upper-middle-class residential areas.

Research Participants

The research focused on daycare providers (owners and managers) working in formal private centers in Dhaka, managing children aged six months to six years during center hours. The participants were selected based on the relevance of this study, as they were directly involved and capable of making important decisions and contributions in their respective daycares. All the participants were female.

Participants Selection Procedure

Participants were selected through purposive sampling, a non-probability technique that guaranteed the inclusion of individuals with specific characteristics relevant to the study (Palinkas et al., 2015). For the In-depth Interviews (IDIs), three managers and three owners were selected from different daycares who willingly shared their experiences and insights. Afterwards, they were invited to IDI sessions. Participants were selected based on three inclusion criteria -

- i) All participants must have a minimum of two years of experience in a position of decision-making,
- ii) They must possess a minimum of a graduate degree
- iii) All participants must be from private daycares that serve children aged six months to six years.

Home-based informal care, government daycare centres, and daycares under a specific organization were excluded from this study.

Research Tools

For data collection, the IDI guideline (attached in Appendix A) and the Non-participatory Observation (NPO) checklist (attached in Appendix B) were developed, which served as primary research tools. The IDI guideline was divided into two parts. Part A covered demographic information such as educational qualifications, years of experience, relevant degree, etc. Part B consisted of semi-structured questions aligned with the research questions. The NPO checklist consisted of descriptive information, observation purpose, and the checklist questionnaire.

Data Collection Methods and Procedure

For this research, two major techniques were applied to gather the data comprehensively, which include IDIs and the NPO method. Before conducting IDIs and NPOs, a guideline and a checklist draft were shared with expert faculty from BRAC IED for review, and then revised for further use. For the NPOs, the researcher set up one full-day observational session in three daycares in selected areas on different days.

In-depth Interviews (IDIs): At first, participants were approached via phone calls for an initial discussion about the research objectives and were assured of confidentiality and the exclusive academic use of the data. After confirming, interviews were scheduled at their convenience. All participants in this study remained anonymous. IDIs were conducted using a verified interview guideline, incorporating relevant semi-structured questions aligned with the research objectives. The duration of each IDI was approximately 35–60 minutes. To uphold ethical standards, written informed consent was obtained prior to conducting the interviews. Data were collected through in-person interactions, beginning with rapport-building through greetings and informal conversation. This helped create a comfortable environment, allowing participants to share their insights spontaneously. Interviews were audio-recorded with permission, and important notes were taken manually when needed. At the end of each interview, participants were thanked for their time, cooperation, and valuable contributions.

Non-Participatory Observations (NPOs): Observation is vital in qualitative research, providing firsthand insights into human behaviors, contexts, and phenomena, enhancing the depth and authenticity of data collection (Creswell &

Creswell, 2017). Hence, in addition to the IDIs, the researcher conducted NPOs in three daycares from each area to obtain first-hand data, capture non-verbal cues, and better understand real-time interactions.

First, permission was obtained during the initial phone call, during which the researcher explained the purpose of conducting the IDIs. Upon their agreement, the NPOs were scheduled on the same day as the IDIs. On the scheduled date and time, written consent was obtained, and the researcher observed each center's activities for one full operational day, lasting approximately six to eight hours. The sessions were conducted in a manner that ensured children and staff were not interrupted. All NPOs were carried out following the NPO guideline, and extensive field notes were recorded manually on paper.

Data Analysis

To interpret the empirical data, the content analysis technique was used to manage and analyze the data, including identifying and interpreting recurring themes. Content analysis is a systematic method for evaluating and interpreting communication in written, visual, and auditory forms, enabling researchers to uncover nuanced meanings, recurring patterns, and underlying connections within the data (Sirilakshmi et al., 2024). Hence, the technique was supportive for this study. The analysis plan included five key steps as follows–

First, after completing the IDIs, the raw data were transcribed and organized from notes and audio recordings, with each participant's input clearly labeled. At the same time, field notes from the NPOs were transcribed and compiled into individual files for each daycare. Each IDI transcript was assigned a serial number for identification. Recorded speech was converted into written digital text using MS Word to ensure

accurate documentation. Since the IDIs were conducted in Bangla, the transcripts were later translated into English. Second, the transcripts from both the IDIs and the NPOs were read multiple times to develop deep familiarity with the data and identify recurring patterns, ideas, and emerging themes. Third, by combining both methods, the data were digitally coded by highlighting significant words, phrases, and sentences relevant to the research questions. These codes were then organized into broader categories based on shared meanings and connections. Fourth, themes were generated from these categories, and each theme was further divided into subthemes to capture a broader range of concepts and insights derived from the participants' narratives. Once the themes were established, they were interpreted in relation to the research questions. Finally, key findings were presented theme and subtheme-wise to effectively summarize and communicate the results, including direct quotations from participants to illustrate the main ideas and perspectives emerging from the data.



Validity of Research Tools

To ensure the validity of the research tools, the IDI guideline and NPO checklist were reviewed by an expert faculty member of BRAC IED, BRAC University. Before conducting the main IDIs, pilot testing was done. For pilot testing, a questionnaire was given to a respondent who was similar to the study population. Later on, the checklist and guideline were revised and were ready for final conduction. Altogether, the reviewing process and pilot testing ensured the content validity of the study.

Ethical Issues

Ethical consideration was given priority at each stage of the research. Prior to data collection, formal approval was obtained from BRAC IED. Then, the participants were informed, and written consent was obtained from each participant before any data collection. Participants were fully informed about the study's purpose, their voluntary involvement, and their right to withdraw at any time without consequences.

All participants' personal information was kept confidential, and their identities were protected using unique codes. Audio recordings and field notes were securely stored and accessible only to the researcher. For the NPOs, permission was obtained from the relevant authorities prior to construction. The researcher ensured that the children's regular activities were not disrupted.

Limitations of the Research

This study encountered two major limitations. Firstly, during the NPO sessions, it was challenging to verify whether certain reported strategies aligned with actual practices, such as the use of warm water during bath time, food storage procedures, mosquito control measures, or checklist adherence.

Secondly, the study was originally designed to conduct two full-day NPO sessions at three different daycare centers. However, due to provider availability issues and permission constraints, this was reduced to one full-day NPO session per center, although the number of centers remained the same.

Despite these limitations, the study obtained rich and meaningful data.

Chapter IV: Findings and Discussion

This chapter is presented in several segments. The demographic information is presented in the first segment, and the findings are then presented as themes and subthemes. The analysis of the findings from the data collected is presented next in the discussion section. Finally, the chapter concludes with a conclusion and recommendations.

Demographic Information

A total of six participants' responses were recorded in this study. All participants were female, aged 26 to 53 years, and demonstrated substantial institutional knowledge, with professional experience spanning 2 to 14 years. They had different educational qualifications. Three participants had completed a Bachelor's degree, and the other three had completed a Master's degree. Additionally, half of them held professional ECD degrees, indicating a strong educational background in the relevant field. Six IDIs were conducted across six different daycares, and three NPOs were carried out in three of those centers, whose capacities ranged from 12 to 31 enrolled children. The daycare centers were situated in Gulshan, Dhanmondi, and Uttara, which are considered middle and upper-middle-class areas of Dhaka city.

Findings

The key findings of this study present a comprehensive exploration of providers' perceptions on climate change and climate-sensitive care, effects of climate change, adapted strategies, barriers, and supporting factors. Findings were derived from the IDIs and NPOs conducted between September 13 and 20, 2025. Findings were organized into four themes, each with several subthemes that emerged from the data.

Theme 1 - Providers' Perceptions of Climate Change and Climate-Sensitive Care

This theme explores daycare providers' understanding of climate change and climate-sensitive care, including how they define climate change, identify key climate-related stressors, and perceive the importance of climate-sensitive care for children.

Providers' Definition of Climate Change: Most participants primarily expressed their understanding of climate change not through technical terms, but through the changes they experienced in real life. When asked about climate change, each participant shared more than one response, pointing to various aspects.

Half of the participants described climate change as “unpredictable weather,” referring to changes in weather patterns, such as intense heat, hotter summers, a less pronounced cold season, frequent heatwaves, and higher humidity. One participant stressed about summer being more dominant in recent years, *“Years ago we used to enjoy pleasant weather, but now I can see the summer season has become more dominant in our country.”* (IDI#4, September 16, 2025).

A few participants perceived climate change as a visible shift in rainfall patterns. They reported unseasonal rainfall (sudden heavy rains during dry periods) and, at times, excessive rainfall. One participant noted a decline in the frequency of the traditional “Kalbaishakhi” storms in Bangladesh, saying, *“I used to see Kalbaishakhi storm in Baishakh month, now there is no sign of it.”* (IDI#2, September 14, 2025).

A few participants struggled to recognize the term “climate change”; however, they still provided unconventional answers, such as earthquakes, daycare's internal environment, hygiene practices, changes in family structure, and physical development (motor skills), as the meaning of climate change. Quoting one

participant, *“I am not actually clear about climate change, but I think it is how we see the environment of the daycare centers.”* (IDI#1, September 13, 2025).

Only a few participants understood the causes of climate change. They linked it mainly to human-induced activities such as pollution, urbanization, and deforestation. One provider noted, *“By cutting the valuable trees, we humans are further urbanizing the society. That is a serious mistake. We only think about short-term benefits, ignoring the long-term benefits.”* (IDI#1, September 13, 2025).

Providers' Identification of Key Climate Stressors: All participants could identify specific environmental stressors or events that they believe affect children's health and comfort in daycare.

Most participants cited extreme heat and high humidity as significant stressors occurring in recent years, often causing children to sweat profusely and experience energy depletion. Quoting one participant, *“Actually, we continuously notice that children become very fatigued because of hot weather”* (IDI#2, September 14, 2025). Another participant expressed, *“Humidity is the most noticeable change to me. Because of humidity, children get tired so easily and often catch a cold from it.”* (IDI#5, September 17, 2025).

Another major concern was air pollution. This poor air quality has a tangible impact on children. Several participants confirmed in the IDIs that the air has become highly polluted, and they linked this to respiratory difficulties among the children in their care. As one owner described, *“In my daycare, I have found that many children fall sick because of bad air. When they commute through the city's polluted environment, they are not able to cope.”* (IDI#5, September 17, 2025).

A few participants perceived COVID-19 as a significant climate-related hazard that disrupted children's lives and health patterns, even when the link is not scientifically connected. One participant shared, *"COVID-19 made a lot of changes in children's lives. Babies born after COVID-19 face different health issues than the babies who were born before that."* (IDI#3, September 15, 2025).

Providers' Understanding of Climate-Sensitive Care and Its Importance: Most participants were unfamiliar with the term "climate-sensitive care," commenting that they had "never heard of it," with only one claiming to know it. However, once introduced, most participants quickly linked it to their existing practices. They noted that their daily efforts to support children's physical well-being fall under the umbrella of climate-sensitive care.

Half of the participants believed that adapting a strategic lifestyle according to the weather is meant to be climate-sensitive care. For example, some linked the concept to actions like changing children's attire to prevent overheating. One provider said, *"When the climate changes, we bring changes in children's lifestyle, such as choosing breathable clothing during summer."* (IDI#5, September 17, 2025).

A few others described climate-sensitive care in terms of maintaining a controlled internal environment, such as regulating indoor temperature and installing mosquito nets. One participant said, *"I always keep the AC temperature according to children's tolerance level. Maintaining the internal environment is important."* (IDI#1, September 13, 2025). Another participant mentioned, *"Diseases like dengue have increased in Dhaka. When I rented this apartment, the first thing I did was install mosquito nets throughout the center, especially on my balcony."* (IDI#5, September 17, 2025).

Notably, one participant framed climate-sensitive care in a broader social context, viewing this as part of a public service to the community. One participant said, *“Our goal is to serve mothers, so we see this as a public service. We keep children safe during different environmental challenges so that mothers can leave them in our care without concern.”* (IDI#1, September 13, 2025).

Along with being aware of the concept, it was important to explore how much importance they give to climate-sensitive care at the centers. In this regard, all participants strongly agreed that climate-sensitive care is very important for young children. Most participants stated that it is essential for protecting children’s health and safety, noting that without it, they may face greater risks and discomfort. According to one participant, *“Without proper care, specifically, care that considers the environment, we would be risking their physical well-being and safety.”* (IDI#4, September 16, 2025).

A few participants also highlighted two additional points. They felt climate-sensitive care is important because it helps mothers balance their work and family responsibilities and gives parents trust and reassurance, as providers assure them that their children are well cared for. One participant said, *“I think the way I take care of the children it gives the mother an assurance. Mothers can remain tension-free, knowing that their children are safe at my center.”* (IDI#1, September 13, 2025)

During NPOs, participants showed some climate awareness through many of their actions, even though they did not express it verbally. Notable example, in one center, caregivers checked the room temperature in a timely manner to maintain a comfortable indoor temperature. In another one, a mosquito net was found all around the center.

Theme 2 - Providers' Perceptions of the Effects of Climate Change

This theme delves into providers' observations of how climate change has impacted their daycare context. It includes the perceived effects on children's physical health, any direct or indirect effects on the daycare center's environment and infrastructure, and disruptions to daily routines attributed to climate factors.

Impacts on Children's Physical Wellbeing: Participants reported several climate-related health issues affecting children. The majority of the participants mentioned that they found children to have recurrent respiratory illnesses, such as coughs, colds, breathing difficulties, and allergies. These are believed to be linked to extreme heat, humidity, and poor air quality, especially during seasonal transitions. One participant noted, *"At the start of every winter, there is a noticeable rise in cases of coughs and colds. What is most concerning is that these issues persist for a long time."* (IDI#1, September 13, 2025). Viral fevers were also common, with the majority of participants noting frequent fevers during season changes. As one said, *"I have noticed children are having different variants of fevers over the years. I believe the environment is changing and it is altering the types of fever."* (IDI#2, September 14, 2025).

Half of the participants reported an increase in skin issues such as rashes, itching, and allergies, often linked to heat. One explained, *"Children tend to get diaper rash during summer, if not cared for properly."* (IDI#1, September 13, 2025).

Some other heat-related ailments were also reported. A few participants described children arriving tired, dehydrated, or fatigued on hot and humid days. One participant noted, *"When children come here from their schools on a hot and humid day, they look very tired,"* (IDI#5, September 17, 2025). Moreover, a few participants

reported loose motion and indigestion, which they attributed to heat. Excessive heat alters the food children bring from home. One Participant said, *“Another health issue I noticed is loose motion. Children get it if they can’t adjust to hot weather.”* (IDI#5, September 17, 2025). Another added, *“Extreme heat spoils the food sometimes, hence, children suffer from indigestion and throw up.”* (IDI#1, September 13, 2025).

A very few mentioned reduced outdoor play due to humid weather, which led to Vitamin D deficiency among daycare children. One participant stated, *“We, as well as the parents, don’t take the kids outside to play much, so they are really lacking in vitamin D these days.”* (IDI#5, September 17, 2025). This point underscores how climate change and related environmental concerns can indirectly affect child health by altering daily routines like outdoor play.

NPOs revealed only minor signs. At one center, two children were found to have colds, and one had minor skin rashes. The center was humid, but the children did not appear to be exhausted or tired from the heat. However, no major issues directly linked to climate change were seen.

Effects on Daycare Environment and Infrastructure: None of the participants reported that climate-induced disasters (such as floods or storms) directly harmed their daycare buildings or facilities in recent years. However, participants did note some indirect or comfort-related effects of climate conditions on their daycare environment. Most participants cited that the increased risk of vector-borne disease due to mosquito proliferation following heavy rainfall is affecting their indoor environment.

Although their centers are not directly flooded, excessive rain causes waterlogging in surrounding areas, creating breeding grounds for mosquitoes, especially in winter.

This leads to an increased presence of mosquitoes inside the centers. One participant shared, *“In this area, we face mosquitoes more than other areas, because this area has a waterlogging issue.”* (IDI#3, September 15, 2025). Another participant stressed, *“In rainy season, we face a lot of mosquito issues. We have to be more careful in that season.”* (IDI#4, September 16, 2025).

A few participants mentioned that extreme heat and heatwaves affect the indoor environment, causing children to feel hot and uncomfortable. One manager said, *“Sometimes, the sun's heat makes our rooms very hot inside.”* (IDI#2, September 14, 2025).

During the NPOs, mosquitoes were observed in two centers, though in minimal numbers. Moreover, a noticeably hotter and more humid indoor environment was felt during one observation. The center, which was humid and hot, relied mainly on fans and natural air rather than air conditioners (ACs).

Perceived Disruption in Daily Routines Due to Climate Change: The interviews revealed that climate and weather disturbances cause disruptions to activity schedules in daycare centers. On extremely hot days, some stimulation activities are modified to prevent overheating and to avoid exhausting the children. A few participants recounted instances in which they had to cancel or modify planned stimulation activities requiring physical movement due to a sudden temperature increase. One manager described, *“One day we prepared an activity theme that had lots of movement and jumping. Somehow, the weather that day became so hot that it was unbearable. Then we had to change the theme.”* (IDI#4, September 16, 2025).

All scheduled daily routines and play activities proceeded normally during NPOs.

Theme 3 – Adapted Strategies for Climate-Sensitive Care

Theme 3 outlines the strategies providers use to protect children’s physical well-being from climate-related stressors, including routine adjustments, indoor environmental management, and center-level policies for climate-sensitive care.

Providers’ Established Routines and Lifestyle Adaptations: All participants confirmed they adopted multiple strategies to ensure children’s physical well-being. They ensured that daily care routines are being carried out in a timely manner, aligning them with the climate.

Hydration management during extreme heat was reported as a key component of climate-sensitive care. All participants described proactive hydration strategies, including promoting water-rich foods, fruits, and fresh organic juices, while discouraging processed snacks and packaged juices, especially during the summer. Some providers also regularly remind parents about healthy hydration practices. One participant said, *“Children who do not want to drink much water, we push their parents to send fresh fruit juice with their daily meal.”* (IDI#2, September 14, 2025). Ensuring easy access to water as a strategy was also emphasized by a very few participants. One participant shared, *“I strategically place individuals’ water bottles at the center of the play area, so that children can see those and drink by themselves. Caregivers also can hand over the bottles quickly.”* (IDI#5, September 17, 2025).

During extreme weather, most participants said they closely monitor what children wear and guide parents accordingly. Light, breathable clothing is preferred in summer, while warm layers are worn in winter. One of the participants stated, *“A simple example of our climate-sensitive care is ensuring season-appropriate clothing. During summer, caregivers are instructed to have children wear comfortable,*

lightweight dresses, and mothers are informed to provide children's clothing accordingly.” (IDI#5, September 17, 2025).

IDIs revealed that extreme heat compromises food quality, hence indirectly affecting children’s physical health. What they eat in a day is important to monitor. To prevent contamination in humid weather, the majority of the participants rely on refrigerating and reheating food brought from home, while one participant prepares fresh meals at the center. One participant said, *“Excessive heat spoils the food easily. Keeping the food safe in the refrigerator is important, and it is directly related to their physical well-being.”* (IDI#5, September 17, 2025).

Another practice involved caring for children who arrive sweating after commuting in public transport (e.g., CNG) on hot days. Half of the participants said they wipe off sweat, change clothes or diapers if needed, and allow children to cool down gradually before resuming activities. They avoid placing sweaty children directly under fans or ACs, as it increases the risk of catching a cold or cough. In this matter, one of the participants expressed, *“If any child comes with sweat, I ensure their head and hair are wiped well.”* (IDI#6, September 20, 2025). Another participant confirmed,

“Children who come here from schools, we do not take them to the shower immediately. First, we let them relax a bit. Then we let them dry themselves if they have sweated. For the small babies, we give a sponge bath.” (IDI#2, September 14, 2025).

Observation data revealed that all centers practiced hydration management in various ways, but there were some inconsistencies in the IDIs. Caregivers offered water, but not on a frequent basis. About the water bottle placement, two centers placed water bottles visibly within reach, and some children accessed them independently. Their

hydration management was being operated smoothly. In contrast, one center gave children water bottles only during snack and lunchtime, and kept the bottles on a shelf away from the children at other times. Moreover, in the afternoon, one child asked for water but had to wait for the caregiver to bring it, as the bottle was kept inside the child's bag on a distant shelf. Children were not seen to fetch bottles independently. About monitoring physical condition, no children were checked for sweat or freshened up upon arrival at any of the centers. However, consistency in clothing adaptation was found across all NPOs. All children in three centers were wearing summer-friendly dresses, as the NPOs took place in the summer season. All centers had functioning refrigerators and microwave ovens.

Management of the Internal Environment through Strategic Activities and

Equipment: All of the participants reported that they actively manage the internal environment of their centers to respond to heat, humidity, and vector-borne disease issues.

Most of the participants prioritized maintaining a comfortable indoor environment by regulating temperatures with AC, combined with fans, to balance indoor environmental conditions. One participant noted, *"The AC temperature is always maintained at 23 or 24 degrees. It is imperative to be careful and notice whether the children are comfortably adjusting to the temperature."* (IDI#3, September 15, 2025). Others preferred a combination of fans and natural air to avoid constant exposure to AC. In those cases, they manage air flow with fans and open windows. Most of the participants also made sure to install Instant Power Supply (IPS), and a very few of them had a generator backup in the building. These systems help ensure that fans, lights, and sometimes AC continue to run in case of a power outage. Also, ensure

children inside do not suffer in a hot indoor environment. One provider mentioned using floor carpets in winter to protect children from cold floors.

Taking strong steps to control mosquitoes emerged as a high-priority measure, given the prevalence of mosquito-borne illnesses (e.g., dengue). Most participants used mosquito nets on windows, balconies, and around beds, using electronic mosquito bats and sprayed mosquito killer spray every morning. One participant shared about combining different measures, *“My entire daycare center is equipped with mosquito nets around it. We also spray aerosol twice a day, in the morning and before afternoon nap.”* (IDI#1, September 13, 2025).

A few participants also shared their strategies for controlling sun exposure in their daycare rooms during extreme heat or heatwaves. They use heavy curtains closed on the windows during the very hottest part of the day to prevent rooms from overheating. One manager shared this situation, *“Our air conditioner is on almost all day long. We have big windows and big space, but we prefer to keep our windows covered with heavy curtains so that extreme sun and heat do not make the room hotter.”* (IDI#2, September 14, 2025).

NPOs largely supported participants’ statements on indoor environment control. In one center, a mix of air-conditioning and fans was used, and despite strong sunlight entering through full-height windows, the rooms remained very comfortable.

Similarly, another center maintained a stable indoor temperature with air conditioning and fans, with no noticeable heating issues. In contrast, the third center which mostly relied on fans and natural air despite having AC, resulting in a noticeably hotter and more humid indoor environment. During nap time in the third center, fans and ACs were used for all children without considering individual sensitivity to ACs; however, no visible discomfort was observed among the children. Furthermore, none of the

centers was found to be overcrowded or congested, which is a critical factor in ensuring comfort and safety during extreme heat and humidity. All centers had IPS, generator facilities, and water filters, although the third center's IPS was out of service at the time of observation. In terms of AC, only two centers had AC in every room, while the third had it in only two of five rooms. Mosquito control practices were generally consistent with the IDI data. One center was found to have visible mosquito nets around the center. Another reported using a mosquito bat hourly, though this was not observed in reality. The third one relied mainly on mosquito repellents during nap time rather than nets or bats.

Integration of Internal Policies for Climate-Sensitive Care: All of the participants also highlighted the role of regular communication with the parents as part of their strategy of climate-sensitive care. They said that they have internal policies to follow parents' instructions about food, shower preferences, medicines, and keep parents informed through phone calls and daily reports. At the same time, participants ask the parents to mindfully provide water-based food, fruit juices, weather-friendly clothes, etc. A few of them emphasised that they personally handle all communication rather than leaving it only to staff, as the communication is very delicate and important. One participant described her availability to parents,

"I communicate with the parents single-handedly regarding everything. We remain very much aligned with the mothers so that children's well-being is fully ensured. Every day, we also send them real-time video recordings so that they stay updated about their children." (IDI#1, September 13, 2025).

Another participant said, *"We're building humans here, so I dedicatedly work on building relationships with the parents, the families. It is one of my major strategies for climate-sensitive care."* (IDI#3, September 15, 2025).

To maintain, monitor, and strategise various activities (e.g., hydration practice, food management), participants use checklists and schedule meetings. The majority of participants use manual and digital checklists to monitor daily activities that ensure children's well-being. About half of the participants also hold weekly and monthly meetings to address existing health issues, monitor caregivers' work performance, and adjust strategies accordingly. Regarding checklists, one manager said, "*We maintain paper-based individual sheets for medicines, mealtime, water intake. Caregivers put tick marks in the checklist for the completed tasks*" (IDI#4, September 16, 2025).

During one NPO session, an instance was observed where a mother provided instructions in person, and the caregiver subsequently followed them. Regarding mosquito control, an IDI from one center mentioned the frequent use of mosquito bats; however, this practice was not observed during the NPO session. Regarding maintaining and monitoring, in all observations, managers and owners were physically present and actively monitored caregivers and care processes. All centers had Closed-Circuit Television (CCTV) cameras to monitor activities. Regarding documentation, only one center was observed using manual daily checklists; the other centers used them privately.

Theme 4 - Facilitators and Challenges in Climate-sensitive Care

The final theme addresses external and internal facilitators that make it easier for providers to carry out climate-sensitive practices, as well as the challenges and barriers they face.

Supportive Factors for Climate-sensitive Care: A number of supporting factors were identified that helped participants to provide climate-sensitive care. Most of the participants mentioned suitable location and infrastructure as supporting factors. They

said that having spacious rooms and good ventilation, big windows are helpful for the children to be comfortable on hot summer days. Having surroundings largely free from major climate hazards also made it easier to keep children comfortable and safe. One participant described how her centre's physical environment supports children's wellbeing, *"This area does not have any water log or flood issue. We have a big airy balcony too. I think altogether it is good for children."* (IDI#4, September 16, 2025).

A few participants also highlighted cooperative flat owners as an important facilitator. They said that being allowed to make small changes, such as installing mosquito nets on balconies or windows, helped protect children from mosquito-borne diseases. One participant shared, *"The flat owner is very flexible and cooperative. We could install the mosquito nets. To be honest, these nets work as a 60% satisfaction factor for the guardians here."* (IDI#1, September 13, 2025).

Human resources, especially the qualified and trustworthy staff, were also cited as a crucial source of support. In this context, participants referred to educated and experienced staff as "qualified." A few participants described such staff as understanding providers of instructions, promptly and accurately identifying children's needs, and performing their duties diligently without negligence. One owner said, *"My staff are expert enough. My manager has a degree in ECD. I always try to recruit people who have relevant degrees. They are always aligned with me"* (IDI#5, September 17, 2025).

Observations reflected similar findings regarding infrastructure across all centers. All were located in relatively climate-hazard-free areas suitable for children. Most of the centers had sunshades for protection during heavy rain, along with good ventilation. Two centers had moderately spacious rooms, whereas one center was the most spacious of all. Caregivers in all centers appeared well aligned with the providers.

Challenges in Implementing Climate-sensitive Care: Alongside these supports, all participants also described challenges in consistently providing climate-sensitive care. A few of them reported that parents' non-cooperation was a challenge. Mothers are found to be ignorant about following the rules about sending water-based food and fruits, which are very important to help their hydration management strategy. One participant stressed, *"It is a challenge to raise awareness among parents about how important healthy food is to keep the children healthy in this hot weather."* (IDI#6, September 20, 2025).

Furthermore, even with competent staff, the workload itself can be a barrier. A few participants noted that managing many children, monitoring their health, and completing daily checklists are extremely tiring. One manager explained,

"Managing all these kids at the same time, monitoring them, and maintaining the daily sheets manually is very tiring for me. This position and the responsibility of caring for so many children are extremely hectic. Not all teachers can survive in this job sector or in daycare services." (IDI#4, September 16, 2025).

Another set of challenges comes from the broader context of operating a daycare in terms of non-cooperation from society and the government. A very few of the participants shared that flat owners can be non-cooperative about adjusting the internal space. Regarding mosquito nets, one participant expressed, *"Sometimes, in rented centers like this, often flat owners do not allow such arrangements."* (IDI#1, September 13, 2025). The same participants noted the government's lack of a more concise framework for daycare operations. Quoting one participant, *"The government should introduce more structured guidelines for private daycare centers, not only for environmental standards but for overall things."* (IDI#1, September 13, 2025).

Challenges related to ignorant parents, flat owners, or the government were not visible during NPOs. High work pressure was evident in one center, where staff were continuously occupied with multiple tasks, and at one point, a caregiver was unable to attend to two children immediately. The center had the highest number of children.

Discussion

This section interprets the main findings through four overarching themes in connection with the research questions and relevant literature. The findings suggest that while daycare providers in Dhaka are mainly aware of the climate challenges impacting children's health and wellbeing, they tend to approach climate-sensitive care intuitively, often based on their lived experiences rather than formal training or policies.

Theme 1 - Providers' Perceptions of Climate-Sensitive Care

To explore daycare providers' understanding of climate-sensitive care, it was first necessary to explore their understanding of climate change as its conceptual foundation.

Most participants offered climate change's "experiential definitions instead of scientific explanations", describing it through irregular weather patterns such as extreme heat, altered seasons, heavy rainfall, and humidity. These micro-level stressors shaped their understanding and align with Islam (2025) and IPCC (2024), indicating that providers interpret climate change mainly through what they experience in real rather than scientific drivers. However, they did not mention broader impacts noted in the literature, such as drought, melting glaciers, sea-level rise, river erosion, or cyclones (Karmakar, 2019; IPCC, 2021; Islam, 2025), reflecting a gap in knowledge. This pattern mirrors global findings that practitioners rely on

lived experiences rather than scientific frameworks (Otto & Thieken, 2024). Only a few participants recognized human-induced causes like deforestation and urban pollution, while some confused climate change with indoor environment or family structure, revealing misconceptions. Thus, awareness exists, but conceptual clarity varies.

A very few could not recognize climate change, mixing it up with earthquakes, daycare's internal environment, hygiene practices, family structure change, and physical development. These are clearly not definitions of climate change. For example, earthquakes are primarily caused by tectonic plate movements deep in the Earth's crust, not by changes in climate at Earth's surface (Buis, 2019).

A very few also confused climate change stressors with COVID-19, which is a biological hazard, reflecting noticeable knowledge gaps (Dehghani & Masoumi, 2020). This partially supports and partially contradicts Rahman et al. (2022), who reported widespread conceptual confusion of climate change, whereas in this study, only a few participants showed such gaps.

Next, the study shows that “climate-sensitive care” as a formal concept is largely unfamiliar to most providers. Nevertheless, once explained, the majority of the participants immediately connected it to their daily practices, such as adjusting children's routines, indoor temperature, and clothing. Their accounts indicate that climate-sensitive care already operates in practice, though without explicit conceptual recognition. This pattern of “low conceptual awareness but strong behavioral adaptation” aligns with Lehmann et al. (2023), who found that German daycare staff perceived climate risks but lacked formal adaptation frameworks. It also supports INEE (2023) and Molina (2025), who note that in low-resource contexts, climate-

sensitive care tends to be implicit and practice-driven rather than policy-led. Providers were clearly adapting their caregiving to climate risks, but these actions relied on personal judgment rather than standardized training or institutional guidance, creating variability in care quality. While all centers had policies in place, most were designed to support general child well-being rather than specifically for climate-sensitive care, underscoring the need for targeted training and formal policy integration.

Participants saw climate-sensitive care as vital for children's safety, parental trust, and mothers' work-life balance. This aligns with Tonmoy and Islam (2021) and Dinkel et al. (2022), who found that trust, parental confidence, and perceived safety are central to sustaining daycare services in urban Bangladesh. In addition, one participant viewed climate-sensitive care as a public service that reassures mothers, not just a health measure. This insight is rarely noted in climate literature and offers a valuable new perspective.

In summary, the study began with the assumption, derived from prior literature, that providers may have little knowledge about climate change and its stressors affecting daycare centers and the children within them.

The findings partially reject the assumption, as most participants had good knowledge of climate change and its effects. It is likely that the participants' current understanding, supported by their strong educational backgrounds, including ECD training, was further reinforced by the fact that all participants possessed advanced educational degrees. However, there is scope to further enhance their conceptual knowledge through targeted training.

Theme 2 - Providers' Perceptions of the Effects of Climate Change

Providers consistently observed a range of climate-related health effects among children, including long-lasting coughs and colds, seasonal viral fevers, skin rashes, dehydration, indigestion, vomiting, and fatigue caused by heat and humidity. These patterns strongly align with global scientific evidence. Heat stress is known to increase fatigue and illness risk as reported by Etzel (2020) and Schapiro et al. (2024), while high humidity contributes to respiratory illness addressed by Rocque et al. (2021). Air pollution further exacerbates breathing issues and cold-like symptoms among children, which is aligned with the Health Effects Institute (2024). Heat exposure also heightens dehydration and loose motion issues, which mirrors the findings of UNICEF (2021) and Geruso et al. (2018). Together, these findings demonstrate alignment between providers' observations and established global health research on climate-related impacts on children.

One finding suggests that children are indirectly affected by climate change as they are noticed to lack vitamin D due to reduced exposure to outdoor in heat, high humidity, and pollution. This can be derived from the findings that concerning weather conditions, such as extreme heat, high humidity, and air pollution, directly and indirectly affect children in the early years. Since children have an immune system that is not yet fully developed, these health issues can disrupt their ongoing physical well-being.

Interestingly, while IDIs revealed many physical health issues due to climate change, only a few visible clinical symptoms of illness were observed during the NPOs. This does not contradict providers' reports; rather, it reflects a common feature of qualitative, perception-based research. Because interviews capture long-term

experiences, while observations reflect only a brief moment in time, making such differences expected and methodologically normal (Isik, 2025).

Contrary to the literature review, it was found that daycare infrastructure is not directly affected by climate events. Despite Bangladesh's well-documented climate vulnerability, none of the participating daycares reported flood damage, storm-related destruction, or any major infrastructure loss. This stands in contrast to what UNICEF (2021) and ICCCAD (2024) reported, predicting direct structural risks for institutions such as daycares in Bangladesh. A plausible explanation is that the sample consisted of private urban daycares located in relatively safe areas of Dhaka rather than in climate-vulnerable and high-exposure regions. Basically, this means that climate risks vary depending on where a daycare is located.

Participants, however, reported several indirect impacts of climate on the daycare environment and operations, including increased mosquito proliferation due to waterlogging, overheated rooms, and the need to modify activity plans on excessively hot days. These findings are consistent with Nabila and Mannan (2023), who highlight inadequate ventilation and elevated indoor temperatures, and with Uddin et al. (2021), who document mosquito-related challenges in congested urban environments. The disruption of planned physical activities during extreme heat also confirms Otto and Thieken's (2024) findings from Germany, showing that climate-induced heat increasingly forces childcare centers to modify activity structures. Although no structural damage was reported, climate conditions still disrupted daily routines in notable ways, aligning with what the literature describes. This finding suggests that providers need to take proactive measures and stay alert to weather conditions in advance.

Overall, the study predicted that a low formal understanding of climate change would lead to "inadequate protective measures." It was also anticipated that providers might lack confidence in applying the appropriate strategies for the children. The findings suggest that most participants are already demonstrating a high level of applied operational competence regarding climate-sensitive care driven by real-life experience. Additionally, they demonstrated a strong understanding of the effects of climate change, both long-term (e.g., vitamin D deficiency) and short-term (e.g., rashes), on the physical well-being of children in daycare centers.

However, it is now evident that children's living environments are constantly under threat, jeopardizing their physical well-being. This highlights the need for specific policies that establish clear standards for indoor environments and equipment in urban daycares.

Theme 3 - Adapted Strategies for Climate-Sensitive Care

The study identified a range of effective behavioral and environmental control strategies used by providers, including hydration management, clothing adaptation, food safety measures, gradual cooling for overheated children, indoor temperature regulation, mosquito control, parent communication policies, checklists, and supervision. These practices align with global recommendations for climate-sensitive childcare outlined by INEE (2023) and Otto and Thieken (2024), indicating that providers are highly proactive even in the absence of formal policy guidance.

However, the NPOs revealed contradictions between reported and actual practices. Although IDIs found sweat-checking on arrival and offering water frequently, none of these were observed during NPOs. This discrepancy reflects a known gap between perceived and actual practice documented in global research by Lehmann et al.

(2023). Another issue is the unequal distribution of cooling equipment across centers. Two centers had more AC units, while the third had fewer units. The center, which had fewer ACs and depended on fans and natural air, was noticeably hotter and more humid. One center's IPS was non-operational and required repair. This variation supports Uddin et al. (2021), who found that environmental conditions in Dhaka's daycares are linked to financial capacity. However, findings contradict another claim of Uddin et al. (2021) that many daycares are crowded and poorly ventilated, as this study found that urban private daycares are neither congested nor poorly ventilated.

Overall, the findings from Theme 3 indicate that providers are thoughtfully adapting their caregiving practices to the weather and aligning them with children's needs, based on their experience, even without formal training in climate-sensitive care. This rejects the findings of Islam and Khan (2015), who argued that providers find it difficult to judge when to modify routines to protect children's wellbeing.

Despite strong adaptive practices, the findings also reveal inconsistencies between some reported and observed behaviors, as well as unequal access to environmental resources, which undermine the reliability and effectiveness of climate-sensitive care. This highlights the need for standardized policies.

Theme 4 - Drivers and Deterrents of Climate-sensitive Care Practices

The study identified several supportive factors that enabled providers to practice climate-sensitive care effectively, including hazard-free locations, helpful infrastructure, cooperative flat owners, and qualified staff. These factors align with global literature on the importance of adequate infrastructure and qualified staff for effective climate adaptation in childcare settings (Tonmoy & Islam, 2021; Malmquist et al., 2021). Providers with educated and experienced staff reported demonstrating

better performance in managing climate-related health risks. This aligns with Lehmann et al. (2023), who found that staff competence is the strongest predictor of effective climate-adaptive response in childcare centers.

However, the data also revealed significant barriers, such as parents' resistance to food guidelines, heavy workloads, and restrictions imposed by flat owners on modifying the premises. The majority of these challenges mirror findings by Nabila and Mannan (2023), and Rahman et al. (2022), who described the instability in daycare operations in Dhaka. The challenges related to ignorant parents and flat owners match the findings from studies by Koester et al. (2021), and Uddin et al. (2021), where external support was often lacking. Moreover, a very few participants noted the lack of clear government guidelines for private daycares and the need to include climate-sensitive care within them. This is a critically important area that warrants further attention. This concern echoes Rahman et al. (2022), who highlighted weak enforcement of the Child Daycare Centre Act 2021.

In sum, the absence of clear guidelines limits its consistency across centers. The study highlights the need for clearer government guidelines on climate-sensitive care and effective strategies to align parents and flat owners with daycare's internal policies.

Conclusion

This study explored daycare providers' perceptions and practices regarding climate-sensitive care for children's physical well-being in selected private daycare centers in Dhaka.

The findings reveal that, despite the lack of formal conceptual knowledge and climate-specific guidelines, daycare providers in Dhaka, with a good educational

background, are already implementing climate-sensitive practices based on intuition and hands-on experiences. While these practices demonstrate a strong commitment to safeguarding children's health in the face of climate stressors like extreme heat, humidity, and air pollution, there is a clear need to enhance their formal understanding of climate change and its impacts. Providers employ strategies such as hydration management, appropriate clothing, food safety, temperature regulation, and mosquito control to mitigate climate-related risks for the children.

However, there are discrepancies between reported and observed practices, as well as unequal access to resources. Additionally, systemic barriers, such as non-cooperation from flat owners and parents, along with the absence of clear government standards, reveal significant gaps that must be addressed to ensure consistent and effective climate-sensitive care.

This study has enhanced the researcher's personal understanding of the challenges that daycare providers face in adapting to climate change in real-world settings. The findings highlight the urgent need for policy integration, standardized training, continuous monitoring, and increased awareness among flat owners and parents to strengthen daycare centers' resilience to climate change.

Further research on relevant topics is essential to strengthen the evidence base for climate-resilient childcare systems in Bangladesh, thereby contributing to the advancement of the early childhood development sector.

Recommendations

The conclusions and analysis of this study identified several issues that could be addressed through key recommendations. The recommendations are -

- i. Daycare providers should be supported through structured capacity-building programs, including training, workshops, and ongoing professional development opportunities, to deepen their knowledge and skills in climate change, climate-sensitive care, and practical strategies for implementation.
- ii. Providers should take proactive measures to stay alert to climate hazards, such as heatwaves, in advance to prevent disruptions to planned activities.
- iii. To bridge the gap between reported and actual practices, it is essential to implement performance-based training for caregivers and establish consistent monitoring systems within daycare centers to ensure the effective application of climate-sensitive care practices.
- iv. Providers should regularly conduct parent-awareness sessions and share short policy guideline materials of climate-sensitive care, helping ignorant parents understand daycare policies and align with the providers.
- v. Providers should advocate for national guidelines to standardize indoor climate conditions, ensure the availability and maintenance of climate-resilient equipment, and introduce streamlined documentation (e.g., checklists) to reduce heavy workload, all while promoting climate-sensitive care practices.
- vi. Further research is also required to explore the perception and practices of providers with lower educational backgrounds, compare different daycare models, and monitor indoor environmental conditions to build a stronger evidence base for climate-resilient childcare systems in Bangladesh.

These recommendations aim to enhance daycare providers' climate-sensitive care.

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Appendices

Appendix A

IDI Guideline for Daycare Center (English Version)

“Perceptions of daycare providers about climate-sensitive care for children’s physical well-being”

Demographic Information

Interview Date:	
Start Time:	
End Time:	
Name of Respondent:	
Age:	
Gender:	
Education:	
Name of the Daycare Center:	
Location:	
Current Designation:	
Experience in the same position (please specify in years):	
Received training on early childhood development/education training (yes / no):	
Age range of the children in the daycare:	

IDI Questionnaire

1. How would you define climate change in your own words?
2. In the context of daycare centers, what do you think climate-sensitive care means?
3. Do you think taking necessary steps during climate crises (e.g., extreme heat, heatwaves, air pollution, dengue season) to protect children's health is important? If yes, why is it important?
4. Can you mention one or two climate-related hazards in Dhaka city that you think had the most significant impact on your daycare or the children?
5. Have you noticed any physical health effects on the children that you believe were caused by climate change events? If yes, how?
6. Has any climate-related event had a direct or indirect impact on your daycare center (in terms of daily activities, routines, infrastructure, entire system, etc.)? Please mention in detail.
7. What strategies do you adopt in your daily activities, routine, and resource management (e.g., cooling devices, water, or air purifiers) to cope with the impacts of climate change on children's health, both indoors and outdoors?
8. Would you consider whether your center's infrastructure (e.g., front road, center building, indoor walls, rooms, and ventilation) is climate-friendly and supports climate-sensitive care? How?
9. How do you ensure or monitor that your caregivers are implementing climate-sensitive care and strategies to protect children's health?
10. What specific plan or protocol do you have in place for extreme weather or climate-related health emergencies (e.g., first aid for heatstroke, air quality alerts)?
11. Do you face any challenges implementing climate-sensitive care and strategies in your daycare overall? If yes, how are you mitigating those?

IDI Guideline (Bangla Version)

"শিশুদের শারীরিক সুস্থতার জন্য জলবায়ু-সংবেদনশীল যত্ন সম্পর্কে ডে-কেয়ার সেবা প্রদানকারীদের ধারণা"

জনমিতিক তথ্য:

সাক্ষাৎকারের তারিখ:	
শুরুর সময়:	
শেষ সময়:	
উত্তরদাতার নাম:	
বয়স:	
লিঙ্গ:	
শিক্ষাগত যোগ্যতা:	
ডে-কেয়ারের নাম:	
এলাকা:	
বর্তমান পদবী:	
একই পদে অভিজ্ঞতা (বছরে):	
শৈশব বিকাশ/শিক্ষা প্রশিক্ষণের উপর প্রশিক্ষণ প্রাপ্ত (হ্যাঁ / না):	
ডে-কেয়ারে শিশুদের বয়সসীমা:	

প্রশ্নপত্র:

১. জলবায়ু পরিবর্তনকে আপনার নিজের ভাষায় কীভাবে সংজ্ঞায়িত করবেন?
২. ডে-কেয়ার সেন্টারের প্রেক্ষাপটে, জলবায়ু-সংবেদনশীল যত্ন বলতে কী বোঝায় বলে আপনি মনে করেন?
৩. আপনি কি মনে করেন জলবায়ু সংকটের সময় (যেমন, চরম তাপমাত্রা, তাপপ্রবাহ, বায়ু দূষণ, ডেঙ্গু মৌসুম) শিশুদের স্বাস্থ্য রক্ষার জন্য প্রয়োজনীয় পদক্ষেপ নেওয়া গুরুত্বপূর্ণ? যদি হ্যাঁ, তাহলে কেন এটি গুরুত্বপূর্ণ?

৪. ঢাকা শহরে জলবায়ু-সম্পর্কিত এক বা দুটি বিপদের কথা কি আপনি বলতে পারেন যেগুলো আপনার ডে-কেয়ার বা শিশুদের উপর সবচেয়ে বেশি প্রভাব ফেলেছে বলে আপনি মনে করেন?

৫. জলবায়ু পরিবর্তনের কারণে শিশুদের উপর কোন শারীরিক স্বাস্থ্যের প্রভাব পড়েছে বলে আপনি কি মনে করেন? যদি হ্যাঁ, তাহলে কীভাবে?

৬. জলবায়ু-সম্পর্কিত কোন ঘটনা কি আপনার ডে-কেয়ার সেন্টারের উপর প্রত্যক্ষ বা পরোক্ষ প্রভাব ফেলেছে (দৈনন্দিন কার্যকলাপ, রুটিন, অবকাঠামো, সমগ্র ব্যবস্থা ইত্যাদির ক্ষেত্রে)? অনুগ্রহ করে বিস্তারিতভাবে উল্লেখ করুন।

৭. জলবায়ু পরিবর্তনের ফলে শিশুদের স্বাস্থ্যের উপর, ঘরের ভেতরে এবং বাইরে, প্রভাব মোকাবেলা করার জন্য আপনার দৈনন্দিন কাজকর্ম, রুটিন এবং সম্পদ ব্যবস্থাপনায় (যেমন, এয়ার কন্ডিশনার, পানি পরিশোধক, ইত্যাদি) আপনি কোন কৌশলগুলি গ্রহণ করেন?

৮. আপনার কেন্দ্রের অবকাঠামো (যেমন, সামনের রাস্তা, সেন্টারের বিন্ডিং, ঘরের ভেতরের দেয়াল, ঘর এবং বায়ুচলাচল) কি জলবায়ু-বান্ধব এবং জলবায়ু-সংবেদনশীল যত্নকে সমর্থন করে? যদি হ্যাঁ, তাহলে কিভাবে? হ্যাঁ/না কিভাবে?

৯. আপনার কেয়ারগিভাররা বাচ্চাদের স্বাস্থ্য সুরক্ষার জন্য জলবায়ু-সংবেদনশীল যত্ন এবং কৌশলগুলি বাস্তবায়ন করছে কিনা তা আপনি কীভাবে নিশ্চিত বা পর্যবেক্ষণ করছেন??

১০. চরম দুর্যোগপূর্ণ আবহাওয়া বা জলবায়ু-সম্পর্কিত জরুরি অবস্থার (যেমন, অতিরিক্ত তাপমাত্রায় অসুস্থ হলে, বায়ুর গুণমান সতর্কতা) জন্য আপনার কোন নির্দিষ্ট পরিকল্পনা বা প্রোটোকল আছে?

১১. আপনার ডে-কেয়ারে জলবায়ু-সংবেদনশীল যত্ন এবং এর কৌশল বাস্তবায়নের ক্ষেত্রে আপনি কি কোনও চ্যালেঞ্জের সম্মুখীন হন? যদি হ্যাঁ, চ্যালেঞ্জ গুলো কিভাবে মোকাবেলা করছেন?

Appendix B

Non-participatory Observation Checklist for Daycare Center (English Version)

Descriptive Information:

Daycare Center's Name:	
Location:	
Date:	
Number of Caregivers:	
Number of Managers:	
Number of Children:	
Start Time:	
End Time:	

Observation Purpose:

- I will understand daycare providers and caregivers' visible actions that reflect their knowledge about climate change and climate-sensitive care.
- I will understand if there is any current occurrence of climate stressors.
- I will observe the effects on children's physical health due to climate change.
- I will identify and understand the strategies and practices they adopt to mitigate the effects of climate change on children's physical health.

Observation Checklist:

1. Is there any word, conversation, gesture, or activity that directly shows caregivers, managers, and providers' awareness related to climate-sensitive care?
2. Are there any visible environmental issues in the center (e.g., hot rooms, poor air quality, mosquitoes, dirty water, or overcrowded classrooms) that directly affect the children?
3. Are there any visible signs of health problems of the children due to climate stressors (e.g., heat-related illnesses, respiratory problems)?

4. What are the daily activities (e.g., educational play) or care routines (e.g., shower, handwash, hygiene) that support physical well-being?
5. Is the outdoor area designed to be climate-friendly and secure, thereby supporting physical well-being? (if applicable)
6. Does the center's infrastructure (front road, surrounding area, wall color, ventilation, generator, etc.) support climate-sensitive care?
7. What is the safety equipment and materials (e.g., cooling system, air and water purifier) that protect children from air pollution, vector-borne, and water-borne diseases?
8. Is there adequate medical support or procedures available to address climate-related health concerns?
9. Are the caregivers responsive enough when children seek help for health-related issues?
10. Is the provider or the manager keeping the daily activities under observation?
11. Are there any noticeable issues that can be marked as "challenges" to ensuring climate-sensitive care overall?
12. Are there any noticeable factors that can be identified as "supportive systems" to ensure climate-sensitive care overall?

Non-participatory Observation Checklist for Daycare Center (Bangla Version)

বর্ণনামূলক তথ্য:

ডে-কেয়ার সেন্টারের নাম:	
এলাকা:	
তারিখ:	
কেয়ারগিভারের সংখ্যা:	
ম্যানেজারের সংখ্যা:	
শিশুদের সংখ্যা:	
পর্যবেক্ষণ শুরুর সময়:	
পর্যবেক্ষণ শেষ সময়	

পর্যবেক্ষণের উদ্দেশ্য:

১. আমি ডে-কেয়ার প্রদানকারী এবং যত্নশীলদের দৃশ্যমান পদক্ষেপগুলি বুঝতে পারব যা জলবায়ু পরিবর্তন এবং জলবায়ু-সংবেদনশীল যত্ন সম্পর্কে তাদের জ্ঞানকে প্রদর্শন করে।
২. আমি বুঝতে পারব যে বর্তমানে কি কোনো জলবায়ু চাপের ঘটনা ঘটছে।
৩. আমি শিশুদের শারীরিক স্বাস্থ্যের উপর জলবায়ু পরিবর্তনের প্রভাব পর্যবেক্ষণ করব।
৪. শিশুদের শারীরিক স্বাস্থ্যের উপর জলবায়ু পরিবর্তনের প্রভাব কমানোর জন্য তারা যে কৌশল এবং অনুশীলনগুলি গ্রহণ করে তা আমি সনাক্ত করব এবং বুঝতে পারব।

পর্যবেক্ষণ তালিকা:

১. এমন কোন শব্দ, কথোপকথন, অঙ্গভঙ্গি বা কার্যকলাপ আছে যা জলবায়ু-সংবেদনশীল যত্নের সাথে সম্পর্কিত কেয়ারগিভার, ম্যানেজার ও স্বত্বাধিকারীদের সচেতনতা সরাসরি দেখায়?
২. কেন্দ্রে এমন কোনো দৃশ্যমান পরিবেশগত সমস্যা (যেমন: অতিরিক্ত গরম ঘর, বাতাসের নিম্নমান, মশার উপদ্রব, নোংরা পানি বা জনাকীর্ণ শ্রেণিকক্ষ) আছে কি যা সরাসরি শিশুদের ওপর প্রভাব ফেলে?

৩. শিশুদের মধ্যে জলবায়ুগত চাপের কারণে সৃষ্ট কোনো স্বাস্থ্য সমস্যার দৃশ্যমান লক্ষণ (যেমন: তাপজনিত অসুস্থতা, শ্বাসকষ্ট) দেখা যাচ্ছে কি?
৪. শিশুদের শারীরিক সুস্থতার জন্য সহায়ক দৈনন্দিন কার্যক্রম (যেমন: শিক্ষামূলক খেলা) বা পরিচর্যা রুটিনগুলো (যেমন: গোসল, হাত ধোয়া, পরিষ্কার-পরিচ্ছন্নতা) কী কী?
৫. (প্রযোজ্য ক্ষেত্রে) বাইরের আউনা বা খেলার জায়গাটি কি জলবায়ু-সহনশীল ও নিরাপদভাবে তৈরি করা হয়েছে, যা শিশুদের শারীরিক সুস্থতায় সহায়তা করে?
৬. কেন্দ্রের অবকাঠামো (সামনের রাস্তা, চারপাশের পরিবেশ, দেয়ালের রঙ, ভেন্টিলেশন বা বায়ু চলাচল ব্যবস্থা, জেনারেটর ইত্যাদি) কি জলবায়ু-সংবেদনশীল সেবা নিশ্চিত করতে সহায়ক?
৭. বায়ু দূষণ, পতঙ্গবাহিত এবং পানিবাহিত রোগ থেকে শিশুদের রক্ষা করার জন্য কী ধরনের নিরাপত্তা সরঞ্জাম এবং উপকরণ (যেমন: শীতলকরণ ব্যবস্থা, বায়ু ও পানি পরিশোধন যন্ত্র) রয়েছে?
৮. জলবায়ু-সম্পর্কিত স্বাস্থ্য সমস্যাগুলো সমাধানের জন্য কি পর্যাপ্ত প্রাথমিক চিকিৎসা সহায়তা বা ব্যবস্থা বিদ্যমান?
৯. স্বাস্থ্যজনিত সমস্যার জন্য শিশুরা সাহায্য চাইলে কেয়ারগিভাররা কি যথেষ্ট সাড়া প্রদান করেন?
১০. ম্যানেজার ও স্বত্বাধিকারী কি দৈনন্দিন কার্যক্রমগুলো নিয়মিত পর্যবেক্ষণে রাখছেন?
১১. সামগ্রিকভাবে জলবায়ু-সংবেদনশীল যন্ত্র নিশ্চিত করার ক্ষেত্রে কি এমন কোনও লক্ষণীয় সমস্যা আছে যা "চ্যালেঞ্জ" হিসাবে চিহ্নিত করা যেতে পারে?
১২. সামগ্রিকভাবে জলবায়ু-সংবেদনশীল যন্ত্র নিশ্চিত করার জন্য "সহায়ক" হিসাবে চিহ্নিত করা যেতে পারে এমন কোনও লক্ষণীয় ব্যবস্থা আছে কি?

Appendix C

Participant's Consent Form

Consent Form for Interviewing Daycare Center Manager / Owner

Research Title: Perceptions of daycare providers about climate-sensitive care for children's physical well-being

Researcher: Rabia Basri Tanya

Organization: Institute of Educational Development, BRAC University

Purpose of the Research: I am conducting this research as a part of my Master's Degree requirement from the Institute of Educational Development (IED), BRAC University. The aim of this research is to explore the perceptions of the providers (owners/managers) regarding climate-sensitive care towards children, the strategies they practice to mitigate climate change related health risks.

Expectation from You

If you agree, you will be expected to share your perception on the matter of climate-sensitive care for children as well as your practices to mitigate climate change related health risks among the children and in you center. In-depth interview may take 40 to 60 minutes, depending upon your response. With your permission, I will record the conversation in regard to collecting data.

Risks

There is no risk or negative consequences to you for participating in this research.

Benefits of the Research:

It is hoped that owners, managers, caregivers, parents, children, and policymakers may benefit directly or indirectly in the future if any national policy or training program incorporates the results of this in-depth interview to promote climate-sensitive care in daycare centers.

Voluntary Participation:

Your involvement in this research is completely voluntary. You are free to withdraw at any point without facing any repercussions.

Confidentiality Assurance

All information collected from you will remain strictly confidential. The data will be stored securely, and any identifying information will be removed to ensure privacy.

Future Use of Information

Some of the data gathered during this research may be preserved for future research. If such data is shared with other researchers, it will be done in a way that maintains the confidentiality and privacy of all participants.

Thank you for your cooperation. A copy of this form will be provided to you for your reference. If you have any questions regarding this research, please feel free to contact me at:

Institute of Educational Development, BRAC University, Niketan Housing Society, Gulshan-1, Dhaka, Bangladesh. Phone: 8824180, 9881265 (Ext. 2127).

Consent

I have read and understood the information provided about the research. I have had the opportunity to ask any questions. I understand that my participation is voluntary, and I am free to withdraw from the research at any time without providing a reason. I also understand that I will receive a copy of this consent form for my records.

Student Name:

Date

Responsible Authority Name

Date:

Appendix D

Authority Consent Form

Consent Form for Observation Session at from Daycare Centre Authority

Research Title: Perceptions of daycare providers about climate-sensitive care for children's physical well-being

Researcher: Rabia Basri Tanya

Organization: Institute of Educational Development, BRAC University

Purpose of the Research: I am conducting this research as a part of my Master's Degree requirement from the Institute of Educational Development (IED), BRAC University. The aim of this research is to explore the perceptions of the providers (owners/managers) regarding climate-sensitive care towards children, the strategies they practice to mitigate climate change related health risks.

My Expected Activity for Your Knowledge

If you agree, I would like to conduct two non-participatory observation sessions at your daycare center, on two different days. Each session will last approximately half a day. These sessions will involve only passive observation of daily caregiving activities and environmental arrangements. There will be no direct interaction with children, caregivers or parents. The focus will be on general practices and routines relevant to climate-sensitive care, such as care for physical wellbeing.

Risks

There is no risk or negative consequences for this observation setting.

Benefits of the Research:

It is hoped that owners, managers, caregivers, parents, children, and policymakers may benefit directly or indirectly in the future if any national policy or training program on climate-sensitive care incorporates the results of these observations.

Voluntary Participation:

If at any point you wish for the observation session to be discontinued, I will fully respect your decision and withdraw from the task immediately.

Thank you for your cooperation. A copy of this form will be provided to you for your reference. If you have any questions regarding this research, please feel free to contact me at:

Institute of Educational Development, BRAC University, Niketan Housing Society, Gulshan-1, Dhaka, Bangladesh. Phone: 8824180, 9881265 (Ext. 2127).

Consent

I have read and understood the information provided about the research. I have had the opportunity to ask any questions. I understand that the observation settings are a part of voluntary participation, and I am free to withdraw from the research at any time without needing to provide a reason. I also understand that I will receive a copy of this consent form for my records.

Student Name

Date:

Responsible Authority Name

Date: