

ASSESSING NORTH CAROLINA PRE-K TEACHERS' PERCEIVED PREPAREDNESS TO
WORK WITH CHRONICALLY ILL CHILDREN FROM LOW-INCOME COMMUNITIES

by

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Many children within the United States face issues related to chronic illness, including living in impoverished conditions that may exacerbate their health problems and undermine academic success. Given the pervasiveness of childhood chronic illness and poverty, along with their potential impact on children's academic success, it remains important to understand the implications of different chronic illnesses and teachers' perceptions of those conditions, specifically asthma, cancer, and diabetes. This study examined North Carolina Pre-K teachers' perceived preparedness to support children with chronic conditions and/or from low-income families. Using an exploratory mixed-methods approach, 78 NC Pre-K teachers were surveyed to assess their preparedness levels and needed supports within the classroom. The results found that teachers were more prepared and knowledgeable about children from low-income families than children with chronic conditions. Additionally, they were more prepared and knowledgeable about asthma followed by diabetes and then cancer. Educators with more teaching experience were also more prepared to support children with chronic conditions across several different domains. A thematic content analysis of the open-ended responses revealed three major themes: (1) varying sources of support, (2) perceived training effectiveness, and (3) recommendations for professional development opportunities. NC Pre-K teachers serve as vital members of the

educational community, working with children under the age of five who have chronic conditions and/or are from low-income families. As such, it remains imperative to improve their preservice education and ongoing professional development to foster higher levels of preparedness to better support diverse populations of students.

Keywords: chronic illness, chronic conditions, poverty, low-income, prekindergarten teachers, preparedness, supports, resources

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This thesis is for every first-generation college student dreaming of breaking multigenerational barriers to achieve something great – you can do it.

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CHAPTER 1: INTRODUCTION

A substantial portion of children within the United States face issues related to chronic illness, including living in impoverished conditions that may exacerbate their health problems and undermine academic success. Given this, families living in poverty may encounter greater challenges in the area of childhood health management and school performance. As many as 27% of U.S. children have at least one chronic illness, with 6% living with more than one condition (O'Neill Hayes & Gillian, 2020). Chronic illnesses may impact a number of academic and health outcomes, including absenteeism, grades, concentration, and relationship formation, all of which may undermine development (Gannoni & Shute, 2010; Gartin & Murdick, 2009; Lum et al., 2019). Moreover, medical advancements have significantly decreased the mortality rate of chronic illnesses, meaning that more children are living into adulthood and reintegrating into schools (Maslow et al., 2011). Such demographic changes hold profound implications for children's well-being and schools' readiness to support them. As the prevalence of chronic illness in the United States is expected to rise over the next several decades, the need for teachers and other education professionals to prepare for interactions with these children remains prominent (O'Neill Hayes & Gillian, 2020). Given the potential influence of chronic illness on children's adaptive development, substantial support must be provided to ensure their environment appropriately meets their dynamic needs.

Chronic illnesses in childhood are defined as "physical, emotional, or mental conditions" which interfere with school attendance or schoolwork, require "frequent attention or treatment" from a healthcare professional, and/or need the use of medications or medical equipment (Van Cleave et al., 2010). Prominent examples of chronic illnesses in childhood include asthma, diabetes, cancer, sickle cell anemia, obesity, and HIV/AIDS. However, the prevalence rates of

these specific chronic illnesses differ. Asthma, for instance, affects anywhere between 7.3 to 9.5% of children, with that number rising to 11-18% when examining children living in poverty (Akinbami et al., 2012; Zahran et al., 2018). Miller et al. (2016) found a prevalence of 0.35% for diabetes and 0.69% for epilepsy among children. Additionally, the American Cancer Society (ACS) predicts that 10,500 children under the age of 15 will be diagnosed with cancer in 2021, with leukemia (28%) and brain cancer (27%) being the most common in children (ACS, 2021). These prevalence rates remain far-reaching and continually growing, thus affecting thousands of families. However, these experiences may be exacerbated for families living in poverty, especially for those without access to healthcare or quality medical facilities. Moreover, when considering how these conditions may impact children's academics, absenteeism, grades, and peer relationships, chronic conditions may then undermine adaptive reintegration into school. For teachers, students' chronic illnesses may divert attention from class time and increase school liability if medical problems occur. As such, the perceptions of childhood chronic illness may vary depending upon the type of condition and the perceived impact of that condition on the classroom environment.

Poverty may serve as a negative determinant affecting children and their development, especially in cases where external support remains low. Poverty remains a complex issue with various definitions depending on the source of analysis. For the purpose of this study, poverty is defined as "a chronic and debilitating condition that results from multiple adverse synergistic risk factors," especially in relation to relative poverty, in which a family's income is insufficient to meet their needs based on the average standard of living (Jensen, 2009). According to the U.S. Census Bureau, the poverty rate within the United States for 2019 was 10.5%, marking a 1.3% decrease from the previous year (U.S. Census Bureau, 2020). However, due to financial and

economic changes during the COVID pandemic, the poverty rate increased to 11.4% in 2020 (U.S. Census Bureau, 2021a). For children under the age of 18, poverty rates are slightly higher at around 14.4% (U.S. Census Bureau, 2020). Moreover, approximately 4 in 10 children reside in households unable to meet basic expenses, marking nearly 11 million children that are considered poor (Sherman, 2020). The possible instability and insecurity that arises within these environments undoubtedly holds the potential to undermine adaptive development, both physically and mentally.

Given the pervasiveness of childhood chronic illness, poverty, and the potential impact they both may produce on children's academic success, it also remains important to understand the implications of different chronic illnesses and teachers' perceptions of those conditions. As will be discussed, chronic illness holds the ability to undermine students' educational progress, especially without the assistance of supportive, knowledgeable, and prepared adults. With children spending a substantial portion of their day in school, teachers may need to serve as both a "conduit of information" and treatment manager, especially for young children without the competency to direct their own care and treatment (Gartin & Murdick, 2009). Even with those expectations, the reality of teachers' previous preparation, knowledge of various conditions, and concerns with managing them may differ, thus warranting a deeper analysis of the potential impacts of childhood chronic illness and poverty in the classroom.

North Carolina Pre-Kindergarten Program

Much of the literature focuses on elementary and middle school teachers' preparedness to work with chronically ill children. However, as the increasing prevalence of chronic illness and poverty affects children at younger ages, there remains a dearth of information assessing children under the age of 5. The inability of these children to solely manage their condition without adult

assistance further underlies the need for competent and prepared teachers (Marks et al., 2013). As such, the study focuses on this under-researched population by assessing prekindergarten teachers in North Carolina Pre-K programs who serve 4-year-olds experiencing poverty and/or chronic conditions, among other criteria. NC Pre-K programs are state-funded educational settings that are designed to improve school readiness in higher-risk populations (Peisner-Feinberg et al., 2019). Importantly, the eligibility criteria of NC Pre-K programs focus on serving families with a gross income at or below 75% of the State Median Income and/or children with documented chronic health conditions (NCDHHS, n.d.-c). The program also urges administrators to include and serve children experiencing homelessness (Peisner-Feinberg et al., 2019). In 2018, 70.4% of NC Pre-K children (n = 21,134) lived at or below 130% of the poverty level, making them eligible for free lunch (Peisner-Feinberg et al., 2019). Additionally, Peisner-Feinberg et al. (2019) calculated that 4% (n = 1,513) of children in the program were diagnosed by a professional health care provider with a chronic condition. The inclusion and prevalence of both poverty and chronic illness within the mission of the program demonstrate the need for teachers who understand the implications of both factors on child development and school performance.

Moreover, although children who attend pre-Kindergarten have only slightly higher literacy and mathematical skills compared to those who do not attend pre-K (Phillips et al., 2017), positive effects are more pronounced for low-income students who often experience greater gaps in school readiness when compared to more financially advantaged peers (Ladd, 2017). As such, the NC Pre-K program offers an important foundation for the development of school readiness skills among the most disadvantaged population, one that could alter the future trajectory of academic and personal development. For children with chronic conditions, however, medical treatments and absenteeism may undermine these benefits, which further underlies the

importance of prepared and knowledgeable teachers to help manage the double stressors of poverty and chronic illness on children's development.

Furthermore, given the prevalence of asthma, cancer, and diabetes among young children and the potential role of poverty in both the initiation and maintenance of the conditions, this study will assess these three specific illnesses. The effects of treatment and medication adherence for these conditions require strict management, necessitating assistance and preparedness from NC Pre-K teachers. In terms of asthma, teachers must understand how to utilize an Asthma Action Plan, what triggers students' asthma attacks, and how to academically support the child due to prevalent absenteeism (Centers for Disease Control and Prevention [CDC], 2018; Hsu et al., 2016; North Carolina Department of Health and Human Services [NCDHHS], n.d.-a). For students with cancer, teachers must understand the effects of chemotherapy on cognitive abilities, the questions students may have regarding their classmate's appearance changes, and how absenteeism may affect their academic performance (ACS, 2017; Canter et al., 2018; Peckham, 1993). Regarding diabetes, teachers must know how to utilize a Diabetes Action Plan, be able to recognize the signs of high/low blood sugar levels, and support students during their increased absenteeism (CDC, 2021; Mark et al., 2013; Wagner et al., 2006). Following these few steps, among a list of others, is not only vital for students' academic success, but also for their treatment adherence, health, and safety.

Eastern North Carolina

The study focused on NC Pre-K teachers within Eastern North Carolina (ENC), a decision that derived from the increased prevalence of poverty within the eastern counties of NC. ENC is comprised of 41 counties east of Interstate 95, which tend to exhibit poorer health outcomes, higher mortality rates, and a higher prevalence of chronic diseases (including asthma

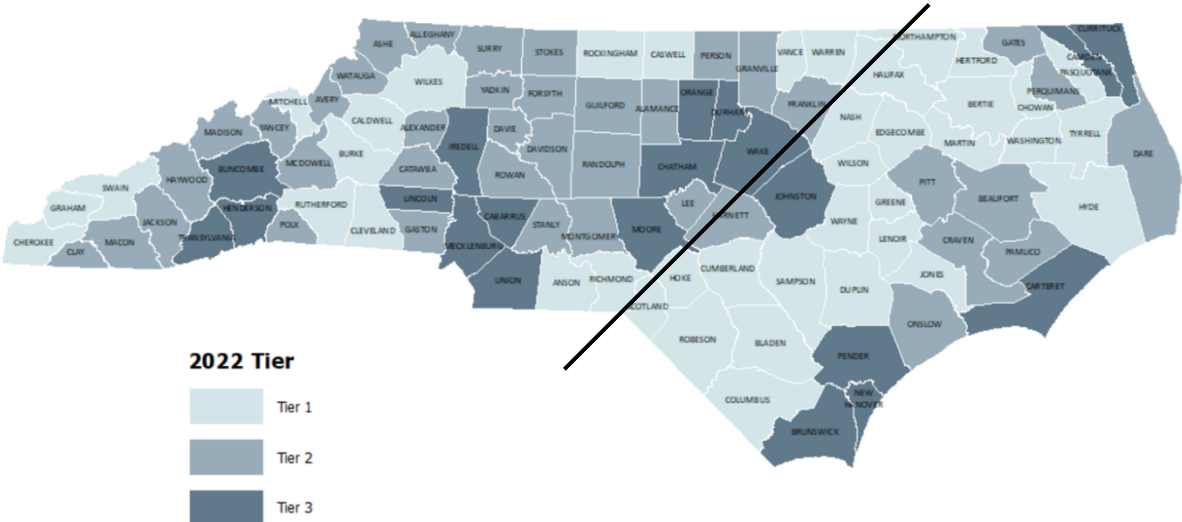
and diabetes) (Eastern North Carolina Health, 2020). Out of the 30 counties with the highest percentage of residents living in poverty, 20 of those are located in eastern NC (U.S. Census Bureau, 2021b). This number jumps to 22 counties out of the top 30 when assessing those living in poverty under the age of 18. Please refer to Appendix B for a more detailed chart of these rates. According to the North Carolina Department of Commerce (2021) Development Tier Designations, 25 counties in Eastern NC fall into Tier 1 or most distressed designation. Tiers are designed based on four ranking factors, including: (1) average unemployment rate, (2) median household income, (3) percentage growth in population, and (4) adjusted property tax base per capita (NC Department of Commerce, 2021). Figure 1 depicts the current 2022 County Distress Rankings map (NC Department of Commerce, 2021). Everything east or to the right of the black line represents Eastern North Carolina. As a greater portion of tier 1 counties are located in ENC, this further demonstrates the poor economic outcomes within the region.

Given the higher frequency of rural areas within eastern NC, which often experience more intergenerational poverty and lower employment rates, the disadvantage within this region is far-reaching (Mitchell, 2015; Sirota, 2012). The prevalence of persistent poverty within the eastern portion of the state illustrates the entrenched nature of disadvantage not only within these children's lives, but also that of their families and communities, thus warranting greater attention to their specific needs. Moreover, the inclusion of both poverty and chronic illness within the mission of the NC Pre-K program demonstrates the need for teachers to understand the implications of both factors on child development and school performance. As such, NC Pre-K teachers, especially those in eastern NC, work at the crossroads of poverty and chronic conditions, situating them as the ideal population to assess these factors. An examination of their preparedness to serve as an early support system for children with chronic conditions and/or

from low-income families could offer a potential avenue for interventions to further enrich children’s long-term development.

Figure 1

Map of 2022 North Carolina Tier Designations



When students are in class, it remains imperative for teachers to hold the knowledge and preparedness to create a safe and effective learning environment. When students are out of class due to absenteeism related to their condition, teachers must understand how to academically support these students from afar. As inclusive classrooms remain an important policy initiative to provide normalcy for all students, teachers’ preparedness to work with this population must become a central focus in training programs. With effective support in the school environment from pre-K teachers, low-income children and those with chronic conditions may experience improved well-being, both personally and medically. As such, NC Pre-K teachers must hold adequate levels of preparedness and knowledge to ensure their classroom remains a safe space for all students, especially those with asthma, diabetes, and cancer or from low-income communities. Therefore, the main purpose of the study is to assess NC Pre-K teachers’ perceived

preparedness to support students with chronic illness and/or from low-income families. To understand the impact of teachers on their students' medical and personal well-being, the interconnected relationships within a child's environment as described in Urie Bronfenbrenner's ecological systems theory provides a useful lens.

CHAPTER 2: THEORETICAL FRAMEWORK

Urie Bronfenbrenner's ecological systems theory helped conceptualize this research study (Bronfenbrenner, 1977). On the simplest level, children primarily develop within the microsystem of the family (Bronfenbrenner, 1986). However, numerous other microsystems exist within which children can interact and grow, including school and the hospital. Particularly, the school system offers a prominent example, where the direct interactions between students and teachers or students and peers can influence a child's development and well-being (Runions et al., 2020). The school system then serves as one component of a child's larger ecological system. Given that children spend a majority of their time within the educational system, teachers must then be prepared to handle issues that may arise due to chronic illness or poverty. Consistency in treatment management must occur throughout a child's various microsystems to ensure effective health outcomes.

Each microsystem also interacts with and influences one another, thus creating the mesosystem (Bronfenbrenner, 1986). Figure 2 demonstrates the interacting nature of the ecological system, with the child at the center. Interventions and resources that increase collaboration between different microsystems can enhance the efficacy of the mesosystem to support low-income children with chronic illnesses. As such, teachers can reach out for resources to improve their ability to support students. Adaptive health management occurs within overlapping systems working in unison to support a child's health and academic development.

The ecological systems theory also lends well to assessing the role of poverty within children's lives. The home microsystem includes a family's financial situation, which may impact factors of resource acquisition and general well-being for students. As children move between the home and school microsystem, these risk factors follow them between locations.

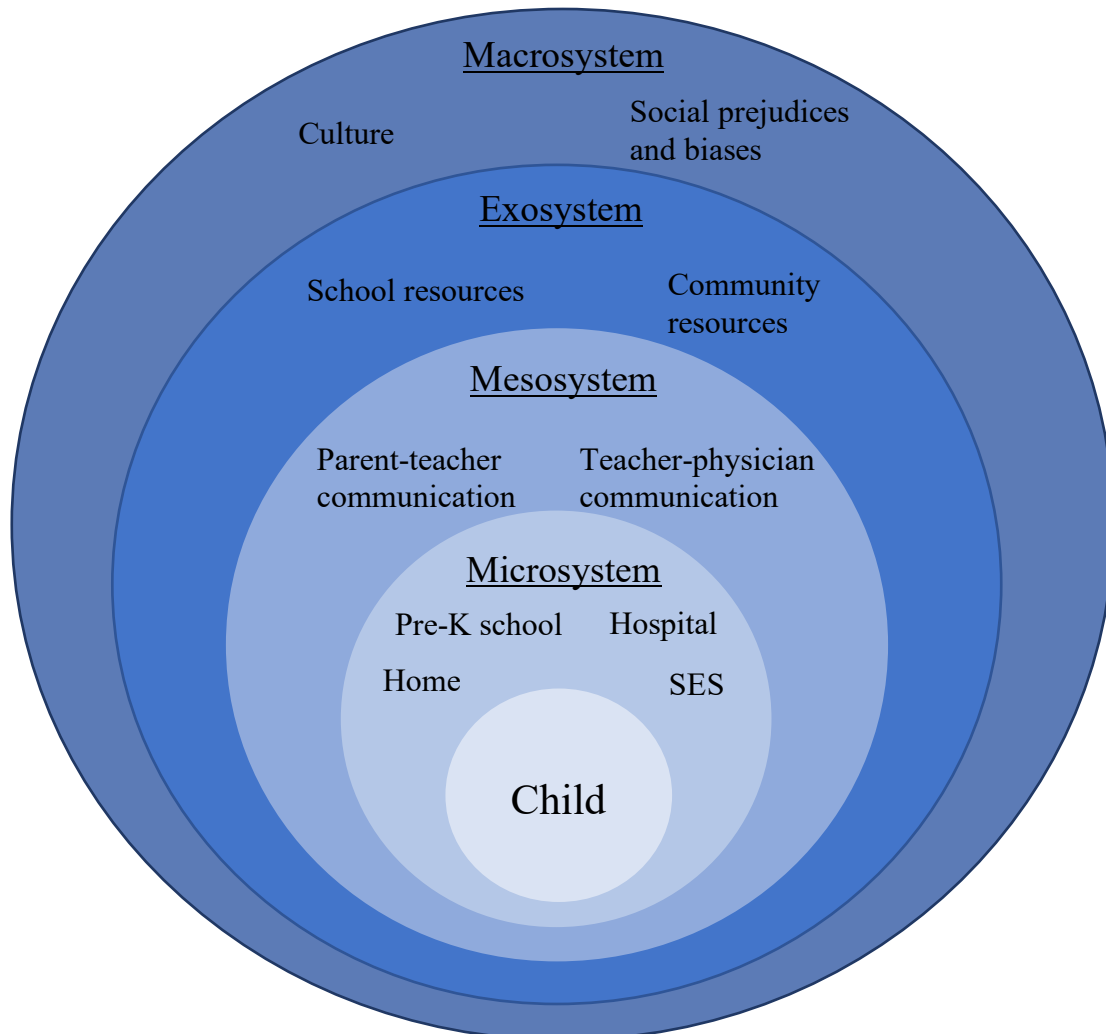
Additionally, school qualities, such as the effectiveness of teachers and peer relationships, may alter well-being within other microsystems. For instance, low-income students perceive less household financial stress when they are satisfied with their school climate (Cuartas & Rey-Guerra, 2019). Such findings demonstrate the interconnection between the home and school microsystems, which may benefit each other when positive experiences are promoted. These mesosystem connections also include the hospital or primary care office for children with chronic illnesses. Through effective mesosystem collaboration, parents, teachers, and medical professionals may enhance adaptive outcomes for low-income children with chronic conditions.

The exosystem and macrosystem also produce effects on children's development. Particularly, community and school resources serve as exosystem factors that may alter how many children are served by state-funded pre-kindergarten programs. Low-income communities, especially in rural areas, often face stressors regarding the availability of school resources. Specifically, the lack of funding based on property taxes or state allotments varies between locations and years, which may negatively impact students' access to services (Iruka et al., 2020). For NC Pre-K, the state covers approximately 60% of the costs, with individual counties being required to fund the remaining 40% (Barnett, 2019). However, poorer or more populous counties may not have the necessary financial capacity to fund each low-income student in need of services, leaving many areas underserved. Macrosystem factors of cultural values and social prejudices may also affect low-income children's development, especially those with chronic conditions. The stigmas of "poor people" are partially indoctrinated at a macrosystem level, where the oppression and marginalization of others becomes a normal design within governmental policies (McKown, 2005). These sociopolitical prejudices and biases then trickle down through the various ecological layers to affect the individual prejudices of teachers,

doctors, parents, and children themselves. The COVID-19 pandemic also serves as a chronosystem factor, in which the sociohistorical conditions of our society due to health and economic changes affect how children and their families interact with teachers and the school system, and may impact their lifelong development (Bronfenbrenner, 1986). As such, these varying factors of influence serve to alter how low-income children with chronic illness develop and grow within the grander scheme of our society. Ultimately, Bronfenbrenner’s ecological systems theory provides a lens through which we can better understand the interrelations between childhood chronic illness, poverty, and teachers’ perceptions of these concepts.

Figure 2

Ecological systems framework for chronically ill children from low-income families



CHAPTER 3: LITERATURE REVIEW

To understand the complexity of poverty, childhood chronic illness, and teachers' perceptions of these two concepts, it helps to examine the issue through these three distinct arms. As such, the literature review is divided into three sections: (1) poverty and chronic illness, (2) poverty and school, and (3) chronic illness, school, and teacher preparedness. As will become evident, the intricacy and expansiveness of these three interrelated concepts demonstrates the need for resources and supports for adults working with young children experiencing chronic illnesses and/or poverty, especially within the school system.

Poverty and Chronic Illness

Before assessing the preparedness of teachers to support children from low-income areas experiencing chronic illness, it remains important to examine the interconnectedness of poverty and childhood chronic illness. An apparent relationship exists between the two concepts, in which chronic illness and poverty produce a continue effect on one another, potentially exacerbating health and financial outcomes without effective intervention (Bloch & Chahroudi, 2019; Lustig & Strauser, 2007; Nikiéma et al., 2010). As such, this understanding serves as the foundation and reasoning behind the examination of low-income children with chronic illness. The literature on poverty and chronic illness is vast and, for the purpose of this research study, we examine closely how various factors impact children, specifically with asthma, diabetes, and cancer, who also come from low-income families.

Poverty to Chronic Illness

One notable pathway that influences chronic illness arises from the effects of poverty on health outcomes, especially through accessibility, parental, and environmental factors. Children living in poverty face more risk factors that undermine their overall health, including tobacco

exposure, hypertension, poor nutrition, and a lack of health preventative strategies (Bloch & Chahroudi, 2019; Wong et al., 2014). The decreased financial capacity of low-income families to regularly maintain ideal health management strategies may contribute to worsened health outcomes, especially given their lack of access to healthcare and consistent primary care physicians (Didsbury et al., 2016). Decreased access may prevent low-income families from obtaining necessary medical equipment, such as inhalers for asthma or glucose monitors for diabetes. Additionally, it may prevent children with cancer from receiving preventative medical visits, which may then lead to later detection of cancer and a worsened prognosis.

Parental factors that stem from or perpetuate poverty also show a relationship with children's health outcomes. Lower levels of maternal education often relate to lower health literacy, while higher levels of education relate to an increase in knowledge of and ability to manage children's health (Didsbury et al., 2016). In other words, mothers with higher levels of education display more competence and possess better resources to support their children's condition, while mothers with lower education levels generally lack these resources and abilities. When considering the impact of parental factors on asthma, diabetes, and cancer, decreased levels of parental health literacy may contribute to lowered treatment adherence and irregular medical visits to monitor health outcomes. These trends hold profound implications for the potential development and worsening of chronic conditions, which may then undermine health outcomes throughout the life course.

Considerations for environmental characteristics as a determinant of health may also affect outcomes. For instance, neighborhood quality undermines health factors, in which those in low-income housing face more exposure to poor air quality, dangerous street traffic, overcrowding, and high levels of noise and light pollution (Evans, 2004; Lustig & Strauser,

2007; Saegert & Evans, 2003). Particularly for children with asthma, the prevalence of poor air quality and lower-grade building materials may exacerbate asthmatic symptoms. Likewise, greater exposure to environmental toxins and poor-quality food options in neighborhood grocery stores serves as an additive risk for diabetes or cancer development (Gaskin et al., 2014). Given the compounded risk for negative health outcomes related to accessibility, parental, and environmental disparities in low-income communities, childhood chronic illnesses are linked to these poverty experiences.

Chronic Illness to Poverty

The development and treatment of chronic conditions also serve to perpetuate poverty, particularly in already low-income families. Chronic illnesses increase private costs to low-income families, often because of specialized medical care, therapeutic and intervention services, transportation, and other related services (Lukemeyer et al., 2000). More time, energy, and money go into supporting the child and their condition, which can affect the stability of the family financial structure. Importantly, chronic conditions do not *solely* cause poverty, but they can increase the financial burden on the family, which may exacerbate financial conditions in already underprivileged families. Often, low-income families facing childhood chronic illness were already poor, but the direct costs of that condition can push them into deep poverty (Lukemeyer et al., 2000). This exacerbation of financial insecurity then affects health, which perpetuates a cyclical nature of poverty and chronic conditions.

Childhood chronic illnesses strain the financial capacity of the family system. For example, parents of children with cancer experienced a heightened risk of poverty as compared to parents with children without cancer, especially if they possessed lower education levels (Mader et al., 2017). The costs associated with treatment management, such as chemotherapy

and other medications, along with potential hospitalization and needed time off from work to attend appointments all contribute to the strain. When families possess lower household incomes, the experience of a child with chronic illness can also stifle economic growth. In line with this, Spencer and Strazdins (2015) found that, although income increased for all families of children with chronic illness across a four-year timespan, the rate of increase was much slower and reduced for the lowest-income families. For some families, chronic illness may not immediately deepen poverty, but it may stagnate or depress overall income changes when compared to families with higher incomes. The inability of families to “climb out” of poverty, through equal income increases or steady employment, contributes to why childhood chronic illnesses can deepen poverty, thus illustrating the pervasive effects of health outcomes on poverty maintenance. For children in these families, the interaction between chronic illness and poverty places them at increased risk for poor health outcomes and academic hardships, with schools serving as a potential environment for continued decline or improved support.

Poverty and School

The pervasiveness of poverty within children’s lives undoubtedly extends to the various microsystems within which they interact, especially in relation to the school setting. From stigma to potential food insecurities, poverty may affect social, emotional, cognitive, and physical factors. Low-income students also face risk factors relating to cognitive disabilities, poor hygiene, lower attendance rates, and insufficient parental support (Hair et al., 2015). Without effective intervention and resources, these experiences may undermine low-income students’ academic behaviors and outcomes. Early childhood educators also display lower preparedness levels to help young children handle society-related stressors, such as living in poverty or experiencing homelessness, which may have implications for their ability to support children facing economic

insecurity (Onchwari, 2010). As teachers serve within the school microsystem, they can either act as promoters or constrictors of academic success for low-income students, depending on their behaviors and views of poverty.

Positive Characteristics

In assessing the role of educators in students' academic and personal success, numerous characteristics seem particularly encouraging in promoting positive outcomes. In a review of literature regarding teacher effects on low-income students, Mangiante (2011) found that effective teachers believe in students' capabilities, set clear learning goals, develop trusting relationships, and regularly self-reflect. These characteristics serve to foster a caring interpersonal relationship with students experiencing the external stresses of poverty. Other positive characteristics of teachers of low-income students include noticing their students' needs, providing academic support, showing respect for students and their families, and caring about families' financial situations (Thomas-Richmond & O'Quinn, 2018). Through these effective techniques, teachers become a useful and encouraging support system, helping to combat the risks that derive from living in poverty. Despite the benefits of these positive characteristics, not all teachers hold supportive views of their low-income students, necessitating an examination of how teachers' expectations and stigmas can play into worsened student outcomes.

Stereotypes and Lowered Expectations

According to Vandsburger et al. (2010), teachers generally come from middle- to upper-class backgrounds, thus lacking experience with poverty. This background differential creates the potential for underlying stigmatizations and biases to form. For instance, some teachers ascribe to stereotypes that "poor people" are lazy, uninterested in education, and unwilling to work (Gorski, 2012) and that only hard work overcomes poverty (Chandler, 2014). These

stereotypes are harmful because they persuade educators to hold lower expectations for their low-income students, which may alter their behavior towards those students or create a self-fulfilling prophecy. Moreover, these stereotypes may cause teachers to blame parents for their child's low levels of achievement, increased absences, and lack of preparedness (Steinberg & Krumer-Nevo, 2020). These perceptions can decrease communication and respect between teachers and parents. Without effective communication, teachers and parents alienate the school and home microsystems, thus leading to less interactive resources and support for low-income students and their academic potential.

Teacher perceptions of low-income students can influence academic outcomes for children even as young as preschoolers. Particularly, in measuring school readiness, a significant number of children from low-income backgrounds are considered deficit in their pre-academic competencies, which may undermine later school achievement (Brooks-Gunn et al., 2007). Some of those deficiencies may arise due to teachers' perceptions of students' abilities. Numerous studies allude to the role of teachers' expectations in students' academic outcomes, in which lower expectations undermine future math and language abilities for low-income students (Baker et al., 2015; Sorhagen, 2013; Speybroeck et al., 2012). As preschool serves an important role in preparing children's school readiness, teachers' inaccurate or unrealistic expectations for low-income students may undercut their later achievements. When coupled with other risk factors, such as chronic illness, teachers' perceived ability to support these children holds important implications for their future success.

Chronic Illness, School, and Teacher Preparedness

Every childhood chronic illness holds diverse symptoms and severities, which differentially impact children and their experiences. For instance, both asthma and cancer result

in regular absenteeism, but the specific symptoms and treatments that cause these absences remain different. Nonetheless, children's functioning and well-being at school may be compromised if teachers are not adequately trained and equipped to work with children and their specific needs related to their illness. In the following section, I will discuss the various perceptions teachers hold regarding their role in supporting children with chronic illness, including their lack of knowledge, training levels, personal attitudes and expectations, other related concerns, and positive views. However, before delving into the specific beliefs of teachers, I will briefly touch upon important information regarding the most commonly noted chronic conditions within the school system, which include asthma, diabetes, and cancer.

Asthma

Asthma remains one of the more prominent types of chronic illness in childhood. In line with much of the available research, many teachers feel most comfortable and knowledgeable supporting students with asthma as compared to those with other chronic conditions (Nabors et al., 2008; Stalls et al., 2018). Given the high prevalence of asthma among low-income children, approximately 11-18%, this demonstrates a potentially positive support system for these children in schools (Akinbami et al., 2012; Zahran et al., 2018). However, absenteeism remains a concern for children with asthma. Approximately half of the children with asthma report one or more attacks in school, with many noting at least one missed school day in the past 12 months (Center for Disease Control [CDC], 2018; Hsu et al., 2016). These trends hold implications for academic success, as students miss instructional time and class content, thus needing to catch up on lost information (Marks et al., 2013; Runions et al., 2020). Importantly for the school system, personalized asthma care plans remain the most effective form of treatment management (CDC,

2018). Nonetheless, schools often lack the resources to compile these plans, leaving both teachers and students vulnerable to medical emergencies within the classroom.

Regarding asthma within the classroom, several specific steps are necessary to ensure the health and safety of students. Particularly, the North Carolina Department of Health and Human Services (NCDHHS) recommends families work with their healthcare providers and school to develop an Asthma Action Plan, which covers the child's specific triggers and medication needs (NCDHSS, n.d.-a). This plan provides teachers with a blueprint on how best to handle a student's asthma attack, which can increase preparedness and improve interdisciplinary collaboration. Additionally, to effectively support children with asthma, it remains important for teachers to recognize certain asthma triggers, such as pollen or mold, in the classroom (CDC, 2018). Such preventative attention may decrease the occurrences or severity of asthma attacks. To enhance students' health, teachers should also know which school personnel oversees the students' management activities and be willing to adjust the daily activities based on environmental factors, such as air quality (National Asthma Education and Prevention Program, 2014). By implementing the above strategies, teachers may support their students' asthma management and improve their overall health functioning during the school day. Such steps may provide a more normalized environment for students to learn and interact with their peers, outside of their chronic asthma

Cancer

Cancer serves as another prevalent chronic condition that may impact students' experiences within school. Although a broad category, different types of cancers and the stage of the disease, along with varying treatment plans, will alter the degree of impact. Due to chemotherapy and radiation treatments, children with cancer often experience physical and

cognitive changes, which may influence their social and academic abilities (Canter et al., 2018). The stress of childhood cancer impacts both students and caregivers, underlining the need for supportive and sensitive care within the classroom. Importantly, children with cancer desire better preparation from their teachers and peers in which to aid their reintegration into school following diagnosis (Gannoni & Shute, 2010). As such, students with cancer require a knowledgeable and supportive environment within which to return to some sense of normalcy.

Despite the variety of childhood cancers that may affect students, commonalities in classroom management strategies do exist. Even when undergoing cancer treatment, the American Cancer Society (2017) recommends children attend school, if such an option is safely possible. The ability to interact with peers and experience normal childhood events creates a safe space and sense of normalcy for children with cancer. However, due to the strains of treatment, many students cannot attend school full-time, leading to increases in absenteeism (ACS, 2017), which requires teacher support to prevent any lags in academic progress. By promoting flexibility and communication, students with cancer may find a sense of joy and normalcy within their potential stressful environment. The effects of cancer treatment may also increase the potential for learning and physical disabilities that undermine school performance (Kaffenberger, 2006). Without recognition of these treatment effects, teachers may attribute educational deficits to the student rather than their condition or treatment. Moreover, when children return from their cancer treatment, they may experience physical changes due to chemotherapy and radiation, such as weight fluctuations or hair loss. To ensure a smooth transition, teachers should talk with their other students regarding these changes to prepare them before the student arrives (Peckham, 1993). Such preparation may dispel misconceptions and promote a more supportive environment for the child when they return. Importantly, as immunocompromised children are dangerously

susceptible to viral infections, teachers must communicate with parents and medical staff to ensure as much health safety as possible, especially if a chickenpox outbreak occurs in the classroom (ACS, 2017). Through effective communication with the child's parents, medical team, and peers, prepared teachers may foster an inclusive, safe, and supportive environment for children with cancer.

Diabetes

Diabetes also affects young children, requiring specific treatment management behaviors within the classroom. Particularly, the treatment of diabetes involves either insulin pump therapy or insulin injections (Marks et al., 2013). Given the intensiveness of these therapies, children are unlikely to receive the recommended treatments and necessary care during school hours, which may produce lasting impacts on their health. Within early childcare settings, preschool children may begin to develop self-initiative and confidence, but they still require support in preventing hypoglycemia and trusting other caregivers to assist in their treatment management (Siminerio et al., 2014). Both inadequate treatment management and missed signs of hypoglycemia can undermine health outcomes and affect children's safety.

Concerning diabetes management within the classroom, specific steps exist which may enhance student health outcomes. As with asthma, the CDC (2021) recommends the development and dissemination of a Diabetes Management Plan, which can provide information on how to recognize blood sugar levels. By reviewing this plan, teachers then know how to recognize diabetes-related symptoms and what to do when they occur, which may ultimately decrease the chance of a hypoglycemic episode. Although the school nurse remains the most optimal person to assist in diabetes management (National Diabetes Education Program [NDEP], 2016), many schools only employ part-time nurses due to budgetary constraints, which leaves

teachers without a resource during those off-hours (Reznik & Halterman, 2016). Therefore, teachers must work with school personnel, parents, and medical staff to ensure appropriate coverage or preparation is in place. Knowledgeable teachers also recognize the nutritional needs of diabetic students, such as particular snacks and water regimens (NDEP, 2016; Siminerio et al., 2014). Although these snack breaks may impede upon the class schedule, they remain important health management strategies to monitor blood sugar levels. Through an understanding of the Diabetes Management Plan, teachers can learn the specific needs of their students and how best to implement those necessary health behaviors within the classroom.

Teachers' Perceptions of Preparedness

While children with chronic illnesses often require a greater amount of support, not all teachers hold enough self-efficacy to effectively supervise these children. Teachers often report a lack of knowledge (Nabors et al., 2008; Stalls et al., 2018), unpreparedness (Adams & Bourke, 2021; Clay et al., 2004; Hinton & Kirk, 2015; Neuharth-Pritchett & Getch, 2001; Papadatou et al., 2002), personal attitude and expectation concerns (Hinton & Kirk, 2015; Gartin & Murdick, 2009; Nabors et al., 2008; Papadatou et al., 2002), and other worries (Hill & Hollis, 2012; Hinton & Kirk, 2015; Marks et al., 2013; Neuharth-Pritchett & Getch, 2001; Olson et al., 2004) related to managing children's chronic illnesses within the classroom. These teacher-related difficulties potentially undermine the necessary support students need to reintegrate into the classroom following their diagnosis and medical absences. Additionally, teachers' perceived preparedness within the classroom may differ based on the amount of their teaching experience. However, some teachers also discover a supportive role in working with these children, thus offering an avenue through which to increase their confidence and encourage outside collaboration.

Lack of Knowledge. When considering the impact of chronic illness within the classroom, many teachers note a lack of knowledge regarding different chronic conditions. In general, asthma remains the most commonly understood childhood chronic illness (Nabors et al., 2008; Stalls et al., 2018). Teachers report understanding and feeling confident in supporting these children, which then provides them with a better support system for improved outcomes. However, knowledge about asthma also relates to teaching level. Middle school teachers were found more knowledgeable about asthma than elementary school teachers (Getch & Neuharth-Pritchett, 2009). Given that children under the age of 5 often require greater assistance in managing their conditions, such as asthma, this holds important implications for pre-K teachers. While they may possess less knowledge regarding the condition, their students are more likely to require their support in the case of an asthma attack.

Moreover, despite teachers reporting greater confidence and knowledge in working with children with asthma, it remains important for teachers not to overestimate their preparedness. Olson et al. (2004) noted that educators often underestimate the needed concern for potential medical emergencies related to asthma and diabetes, which may cause them to overlook the severity of symptoms in an asthma attack or hypoglycemic episode. Therefore, with enhanced knowledge comes the reminder that certain aspects of chronic illness management remain outside teachers' scope of practice. Such a concern demonstrates the need for effective collaboration within the school microsystem, along with improved mesosystem interactions with parents and medical professionals.

Differences in knowledge levels also exist between various categories of teachers. Nabors et al. (2008) found that special education teachers reported possessing more knowledge on cerebral palsy, epilepsy, spina bifida, and renal failure as compared to regular teachers. The type

of training differences found within special education and regular education programs may help account for some of this discrepancy. Moreover, preservice teachers report greater knowledge regarding asthma and less knowledge of sickle cell anemia (Stalls et al., 2018). Yet, as NC Pre-K programs utilize inclusive classrooms and policies, these teachers will likely encounter students with a diverse range of chronic conditions, thus requiring a more robust knowledge base, especially for diabetes and cancer.

Teacher Training. Feelings of unpreparedness might stem from both teachers' previous academic training and their inability to handle a medical crisis. Despite knowing a least one child with chronic illness, educators feel untrained to handle the needs of these children (Clay et al., 2004). Such occurrences hold important consequences in the classroom, where students may experience medical emergencies or treatment management needs. Without effective teacher support, children's conditions may go undermanaged and undertreated, leading to worsened health outcomes later.

When assessing previous academic training, teachers often mention a lack of focus and coursework regarding how to manage chronic illnesses within the classroom (Adams & Bourke, 2021; Hinton & Kirk, 2015). Even earlier studies found similar trends in which teachers were not properly trained to manage children with chronic illnesses both in general and with asthma specifically (Neuharth-Pritchett & Getch, 2001; Papadatou et al., 2002). Across a span of 20 years, teachers still report not feeling prepared from their previous academic training to meet the needs of their students. Without a more focused approach, teachers are unlikely to gain a sense of preparedness, leaving students with chronic conditions at heightened health risks.

Not only do educators lack formal training regarding chronic illness, but they also often do not receive ongoing professional training. These training and continuing education

requirements are needed to enhance teachers' awareness, capabilities, and self-efficacy in working with these children. Even when training opportunities exist, they often do not address the contemporary needs of children's health. Adams and Bourke (2021) found that professional trainings do not provide enough instruction on the specialized learning and social needs related to childhood chronic illness. Without a place for teachers to obtain new knowledge, they likely will continue in a cycle of unpreparedness. Therefore, better collaboration between teachers and medical professionals remains an important component in enhancing professional development, providing contemporary resources and current knowledge on childhood chronic illness.

Personal Attitudes and Expectations. When asked about children with chronic conditions, teachers sometimes discuss various personal attitude and expectations regarding these students. They report being more lenient in grading and often refrain from discussing the condition with both the student and their peers (Papadatou et al., 2002). In other words, their attitudes become more avoidant, with their expectations of the student ultimately diminishing. Given this trend, for teachers to effectively support their students with chronic illness, they first need to assess their own attitudes and feelings regarding the condition and prognosis (Gartin & Murdick, 2009). Unless educators address their biases and lowered expectations, they may unfairly attribute altered academic success solely to their students, without acknowledging the effects of their own perceptions.

A common response in assessing teacher preparedness involves a lack of confidence and self-efficacy in managing students' health needs. Without the proper knowledge, teachers feel apprehensive about their abilities to handle medical emergencies (Hinton & Kirk, 2015). Subsequently, these perceptions can cause teachers to avoid engaging in treatment management or to provide lower-quality care. Interestingly, differences in confidence levels are found

between the various chronic conditions. Nabors et al. (2008) reported that teachers indicate greater confidence in meeting the needs of children with asthma, diabetes, and cancer, with less confidence regarding sickle cell anemia, spina bifida, cerebral palsy, and renal failure. These different levels may be attributed to previous knowledge and training. However, they hold massive implications for children with lesser-known chronic conditions who may then experience less support within the classroom. Along with better academic training, more professional development, and increased preparedness derives a natural sense of confidence in managing an inclusive classroom, thus enhancing support for children with chronic conditions.

Other Concerns. Other concerns often arise in managing children's chronic illness within the classroom. Liability concerns remain a prominent fear of teachers as they consider their role in the student health management plan. Particularly, teachers note practicing medical assistance as completely outside their scope of practice, increasing liability if problems occur (Hill & Hollis, 2012; Marks et al., 2013; Neuharth-Pritchett & Getch, 2001; Olson et al., 2004). This fear can disincentivize teachers from providing assistance, which holds negative implications for consistent treatment management. Moreover, teachers sometimes label these students as "risky," with healthcare requirements that increase burdens on responsibility and time (Hinton & Kirk, 2015). These feelings further demonstrate the lack of knowledge and preparation teachers receive regarding the realities of childhood chronic illness. Instead of promoting an integrated mesosystem of support with effective resources, educators are left to feel alone and solely responsible for the management of these children, which then causes fears of liability and inconsistent care.

Another concern often expressed by teachers involves the time and attention that goes into supporting a child with chronic illness. As students with chronic conditions require more

attention to assist in managing their illness, teachers perceive the loss of instructional time for other students as a detriment (Marks et al., 2013). Without a consistent management plan, knowledge of the condition, and support within the school, children's health needs are more likely to avert instructional time and increase educators' stress. Related to concerns of liability, teachers may also fear medical emergencies, both regarding accountability and the diversion of attention (Olson et al., 2004). These fears become increasingly prevalent when clear guidelines regarding medical plans are not disseminated between the school and parents.

Teaching Experience. When considering teachers' preparedness to work with their students, the amount of experience they have within the classroom may affect outcomes. For instance, experienced teachers tend to display higher levels of preparedness in their content areas, pedagogy, and classroom practices as compared to new teachers (Organization for Economic Cooperation and Development, 2017). Additionally, as teachers gain more experience, their effectiveness in the classroom is shown to increase, as indexed by student achievement gains and school attendance (Harris & Sass, 2011; Kini & Podolsky, 2016). Although these studies related to more general classroom practices, they demonstrate that teachers' level of experience may affect their confidence, self-efficacy, and effectiveness. These factors could potentially impact the level of preparedness teachers have in working with diverse populations, such as children with complex needs due to their chronic condition.

When assessing children with disabilities, Chadwell et al. (2020) found that as educational attainment increased, perceived preparedness to teach these children also increased. However, regarding teacher experience and children with chronic conditions, Papadatou et al. (2002) found that Greek educators with more than nineteen years of teaching experience were reluctant to discuss children's chronic conditions within the classroom. The difference was

attributed, in part, to more experienced teachers holding more traditional Greek values that adults should shield or hide medical diagnoses from young children (Papadatou et al., 2002).

Experienced teachers may ascribe to more traditional beliefs, which might impact how they approach working with chronically ill children. Therefore, considerations of teachers' experience in the classroom and how they may affect preparedness levels and overall beliefs should be considered.

Positive Attitudes. Despite the lack of preparation and knowledge that teachers often report regarding childhood chronic illness, positive features are sometimes derived from the experience. In general, teachers demonstrate a positive perception of children with chronic illness within their classrooms (Olson et al., 2004). Even with the difficulties that may arise due to teachers' perceived unpreparedness or the needs of children's treatment management, teachers express an optimistic relationship with these students. Importantly, educators may find a sense of privilege and opportunity to expand their professional skills as a benefit in working with children with chronic illnesses (Adams & Bourke, 2021). The ability for teachers to find meaning through building better rapport with their students or expanding their professional competence offers a positive lens through which to conceptualize the teaching experience. Often, despite the difficulties that children may face from their condition, teachers express compassion for their students, considering them "diligent, ambitious, and resilient" (Adams & Bourke, 2021, p. 5). These more positive perceptions of students' character and ability serve as a pathway both for the teacher in understanding the child's needs and for the student in receiving encouragement. Those who develop these positive attitudes, often manifesting in the development of a closer relationship with the child, may then foster a more supportive learning environment (Papadatou

et al., 2002). By nurturing an open and communicative relationship with their students, teachers not only support the academic successes of these children, but also the social ones.

COVID-19 Effects on Health, Poverty, and Schools

When considering the connection between children's health, their financial security, and school systems, the prominence of COVID-19 during the conceptualization and implementation of this study must be considered. As of February 10, 2022, 18.4% of North Carolina's cumulative COVID-19 cases were children under the age of 17 (American Academy of Pediatrics & Children's Hospital Association, 2022). Although children are considered less susceptible to severe COVID-19 symptoms, those with comorbid conditions, such as asthma, cancer, and diabetes, may be at a higher risk for hospitalization or severe infection (Graff et al., 2021; Kompaniyets et al., 2021; National Cancer Institute, 2022; Woodruff et al., 2022). While the American Academy of Pediatrics (AAP, 2022) recommends safe and in-person school learning, children with chronic conditions may be at higher risk for complications due to COVID-19, thus requiring more cautious approaches. Given this heightened risk, the benefits of in-person class instruction, such as social and cognitive stimulation (Yoshikawa et al., 2020), may be dampened by health risks. Therefore, the health effects related to COVID-19 could serve as an additional concern for teachers as they assess their preparedness levels to support children with chronic conditions.

Another considerable consequence of the COVID-19 pandemic involves the instability of food and housing access for at-risk populations and those living in poverty. For instance, children experiencing food insecurity are less likely to receive regular meals when schools are closed or the child is absent due to COVID exposure (AAP, 2021; Yoshikawa et al., 2020). Additionally, housing insecurity increases the risk for chronic absenteeism, lower grades, and

greater toxic stress, which all contribute to worsened academic outcomes and higher levels of anxiety (AAP, 2021). The inability to receive regular healthy meals or familial stress of financial insecurity may undermine outcomes for children from low-income families. As such, the effects of the COVID-19 pandemic on health and financial outcomes for children with chronic conditions and/or from low-income families serve as an important contextual factor for the current study.

Purpose of the Current Study

Given the literature, the purpose of this study intends to assess teachers' preparedness and perceptions in supporting low-income students with chronic illness. Specifically, the study will focus on students with asthma, diabetes, and cancer, given their greater prevalence among young children. Importantly, lacking from the current literature is attention to the interconnected effects of poverty and chronic illness on young children, along with teachers' abilities to support children facing both of these experiences within school. Given the potential cumulative effects of poverty and chronic illness, these students require competent and effective support within the school microsystem. Additionally, gaps in the literature fail to address the early effects of poverty and chronic conditions on children under the age of 5, despite the fast-acting effects of poverty (Nikiéma et al., 2010) and decreasing age prevalence of chronic conditions (O'Neill Hayes & Gillian, 2020). By examining teacher preparedness among NC Pre-K teachers, the early influence of the school microsystem may be elucidated to enhance early intervention. As such, the present study aims to examine NC Pre-K teachers' preparedness to support low-income students with chronic illness, specifically asthma, cancer, and diabetes. In this study, we *operationalize preparedness as teachers' knowledge, comfort, and confidence in working with children who have chronic illness in general and specifically children with a medical diagnosis*

for asthma, cancer, and diabetes. Additionally, we also examine teachers' preparedness in working with children who come from low-income households. Lastly, open-ended questions will be analyzed to examine teachers' need for support and resources to work with chronically ill children and children from low-income families. Thus, the following research questions will guide the research study:

1. How prepared and knowledgeable do NC Pre-K teachers feel to support children with chronic illness in general?
2. How prepared and knowledgeable do NC Pre-K teachers feel to support children with asthma, cancer, and diabetes within their classrooms?
3. How prepared and knowledgeable do NC Pre-K teachers feel to support children from low-income communities within their classrooms?
4. Overall, do teachers' preparedness and knowledge levels differ across their general understanding of chronic illnesses and working with children from low-income families?
5. Overall, do teachers' preparedness and knowledge levels differ across three specific chronic conditions (asthma, cancer, and diabetes)?
6. Do teachers' personal characteristics, such as age or race, correlate with or relate to their preparedness score in general and with specific chronic illnesses?
7. Do teachers' years of experience in education correlate with their preparedness scores in general and with specific chronic illnesses?
8. What supports and resources do NC Pre-K teachers currently have and need to better work with children with chronic conditions and/or from low-income communities?

CHAPTER 4: METHODS

This chapter provides an overview of the study design, participants, data collection procedure, measure, data management, and data analyses plan. The study was approved by the University and Medical Center Institutional Review Board at East Carolina University (refer to Appendix A).

Design

This exploratory study utilized a mixed-methods design. NC Pre-K teachers' perceived preparedness to support children with chronic conditions and/or from low-income communities has not previously been studied. Exploratory designs provide researchers the flexibility to examine topics which are not previously investigated or further explore new ideas (Swedberg, 2020). As such, an exploratory approach was deemed fit to examine the understudied co-occurrence of childhood chronic conditions and poverty within early childhood, with a specific subset of teachers who are in a unique position to encounter both these possibilities. Additionally, the mixed-methods approach allowed us to blend the advantages of quantitative statistical analyses with qualitative thematic content analysis to examine this topic holistically.

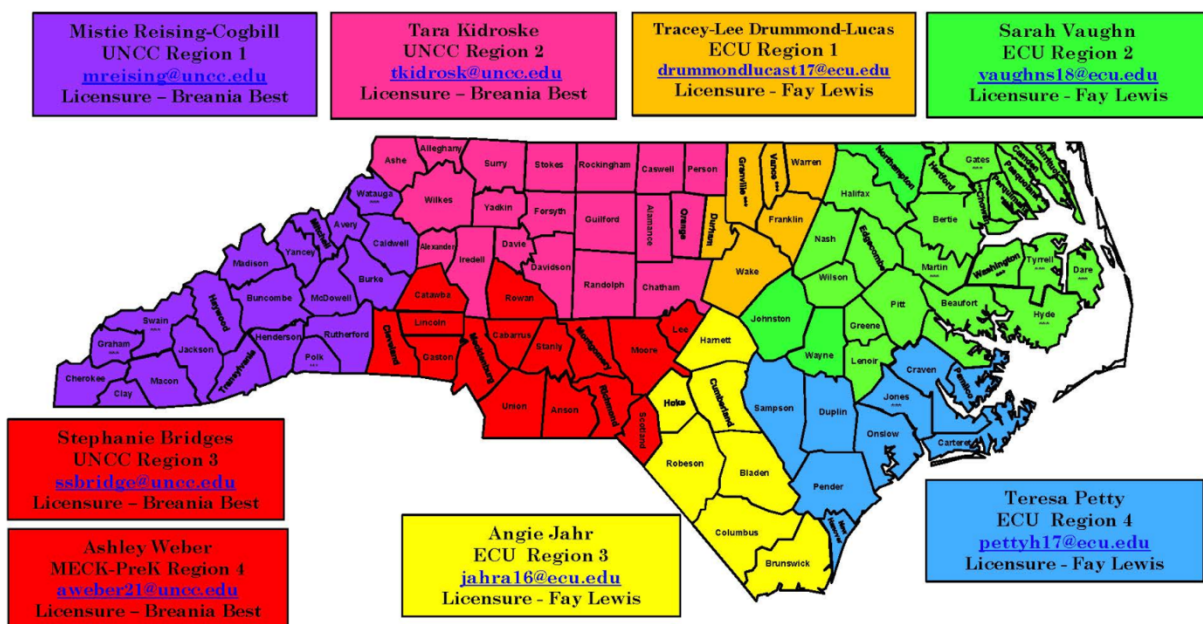
Participants

Eligible participants for this study were lead NC Pre-K teachers throughout Eastern North Carolina, specifically those associated with the University Early Educator Support (EES) Hub. The EES functions as a unit of the North Carolina Division of Child Development and Early Education. Lead NC Pre-K teachers at nonpublic school locations are provided coaching, professional development, and licensure support across eight regions split between two hubs, one in the eastern and western portions of the state (NCDHHS, n.d.-b). The EES program at East

Carolina University provides support and mentorship to four regions across Eastern North Carolina, with Figure 3 illustrating the various regions.

Figure 3

Map of Region Divisions for the Early Educator Support Office



A purposive sampling technique was employed to recruit and survey NC Pre-K teachers. Purposive sampling involves the selection of participants based on professional judgement of representative characteristics in regard to the study’s aims (Greenstein & Davis, 2013). As NC Pre-K teachers work with students experiencing poverty and/or chronic conditions, their connection to both concepts situated them as the ideal population for this study. Additionally, as the University EES hub primarily mentors and evaluates NC Pre-K teachers in the eastern region of NC and can access these teachers readily, we partnered with them to distribute the surveys. To recruit participants, the EES coordinator was emailed to request their assistance in sending out the initial email inviting NC Pre-K teachers to participate in the study and sharing the link for the survey.

Procedure for Data Collection

The survey was administered utilizing the survey software, Qualtrics, which is a web-based tool used by the researcher's university. An online web-based data collection method allowed for a greater reach to the various teachers spread out amongst Eastern North Carolina. Before beginning the survey, participants were required to read through the consent form and agree to participate. If they declined, they were immediately directed to a screen which thanked them for their time.

The survey tool was available through a link emailed to prospective participants by the EES coordinator from January 24, 2022 to February 20, 2022. Participants were told the survey would take approximately 15 to 20 minutes to complete. Additionally, they were told participation would be completely voluntary and teachers who participated would be entered into a drawing for a \$10 electronic gift card. In order to increase the response rate, participants were emailed twice during the span of the survey. The first email elicited 47 responses and the second email elicited 41 more responses.

To ensure anonymity and confidentiality, survey responses were received without record of the Internet protocol addresses of each participant. The responses were not linked to any identifying information and data was reported in an aggregated form. However, by completing the study, participants were allowed to enter a drawing for a \$10 electronic gift card, which required collection of their emails. To further maintain anonymity, participants were directed to a different Qualtrics survey which allowed for them to enter their name and email address. These responses were not connected to their survey responses. Additionally, participants were told that participation in the gift card drawing was voluntary.

Measures

The questionnaire for this study was adapted from a study completed by Stalls et al. (2018). The survey was comprised of seven sections that were designed to assess demographics, teachers' preparedness regarding general chronic conditions, specific preparedness for asthma, diabetes, and cancer, preparedness for poverty, and resources/supports needed to effectively work with children in this community. Please see the attached survey in Appendix C. To ensure face validity, the survey was reviewed by a Professor of Pediatrics and Public Health and a former NC Pre-K teacher and current project coordinator. They provided suggestions based on their medical and educational knowledge of childhood chronic conditions and NC Pre-K classrooms, respectively. Suggestions regarding how teachers might manage chronic conditions within classroom, such as utilizing parental communication, and the nuances of the various conditions, such as the difference between acknowledging and minimizing contact with asthmatic triggers, were incorporated into the final version of the survey. The current survey was adapted from a previous study conducted by Stalls et al. (2018) with a reported Cronbach's alpha of 0.95. The altered version used within this study also revealed high internal consistency (Cronbach's $\alpha = 0.97$) on the overall survey scale and the individual subscales (see Table 1).

Table 1

Cronbach's Alphas for Survey Subscales

Subscale	Items	Cronbach's α
Chronic Illness	9	0.91
Asthma	9	0.97
Cancer	9	0.96
Diabetes	9	0.97
Poverty	6	0.96

The current survey comprised of seven sections. The first section contained demographic questions about gender, race/ethnicity, age, education level, licensure information, experience, and classroom information. The second section, with nine questions, measured pre-K teachers' general preparedness to work with children with chronic illnesses. General preparedness encompassed: (1) knowledge of the chronic condition and specific requirements associated with that condition, (2) knowledge of poverty-related effects, (3) comfort in supporting and caring for these children, (4) confidence in their abilities and resources, (5) capability to manage emergencies, (6) understanding of their own personal values/beliefs, and (7) adequacy of previous education/training. As an example, one question read, "I feel confident in my knowledge of chronic childhood illnesses." Responses were rated on a scale of 1 to 5, with 1 meaning "strongly disagree", 2 meaning "disagree", 3 meaning "neutral", 4 meaning "agree", and 5 meaning "strongly agree."

The third section, with nine questions, measured pre-K teachers' perceived preparedness, confidence, and knowledge to work with children with asthma. The section asked general questions, such as, "I feel knowledgeable and competent in my understanding of childhood asthma." It also measured specific actions required to support children with asthma, such as, "I feel prepared to assess a student's asthmatic triggers and minimize their contact with those triggers." Responses were rated on a scale of 1 to 5, in accordance with the above-stated scale.

The fourth section, with nine questions, measured pre-K teachers' perceived preparedness, confidence, and knowledge to work with children with cancer. The section asked general questions, such as, "I feel knowledgeable and competent in my understanding of childhood cancer." It also measured specific actions required to support children with cancer, such as, "I feel knowledgeable about the symptoms related to childhood cancer that may

interfere with school performance and daily functioning.” Responses were rated on a scale of 1 to 5, in accordance with the above-stated scale.

The fifth section, with nine questions, measured pre-K teachers’ perceived preparedness, confidence, and knowledge to work with children with diabetes. The section asked general questions, such as, “I feel knowledgeable and competent in my understanding of childhood diabetes.” It also measured specific actions required to support children with diabetes, such as, “I feel confident in my ability to recognize high and low blood sugar levels in a diabetic student.” Responses were rated on a scale of 1 to 5, in accordance with the above-stated scale.

The sixth section, with six questions, measured pre-K teachers’ perceived preparedness, confidence, and knowledge to work with children from low-income families/communities. The section asked general questions, such as, “I feel knowledgeable and competent in my understanding of the role poverty plays in children’s development.” It also measured specific actions required to support children from low-income communities, such as, “I feel comfortable reaching out to and interacting with the parent(s)/guardian(s) of a child from a low-income community.” Responses were rated on a scale of 1 to 5, in accordance with the above-stated scale.

The seventh section measured teachers’ perceived support and resources. Serving as the qualitative portion of the study, six open-ended questions assessed whether teachers were willing to reach out for resources, if they think their preservice and ongoing professional education had prepared them, and what measures should be taken to improve their preparedness.

Data Management

Following the closing of the data collection period, the responses were exported from Qualtrics to the primary researcher’s SPSS software, which was password protected.

Data Analysis

Quantitative Analysis

Both descriptive and parametric statistics were employed to analyze data using SPSS statistics 27 software package. Mean, standard deviation, and frequency were utilized to describe demographic data and overall scores of preparedness. Composite scores were also calculated for each of the subscales by adding the responses given to the individual questions on the scale to create an overall score. Utilizing composite scores allowed for a differentiation from the individual mean responses and provided a larger range to assess teachers' overall preparedness to care for these children. Paired-samples t-tests were used to examine differences in mean preparedness and mean knowledge levels between children with chronic conditions and those from low-income families. Repeated measures ANOVAs were used to examine differences in composite preparedness and mean knowledge levels for asthma, cancer, and diabetes. Pearson's correlation was utilized to examine the relationship between demographic data and teacher preparedness scores, while a one-way ANOVA was used to compare means between teachers' preparedness across racial/ethnic groups. Information regarding the statistical test used for each research question is provided in Appendix D.

Qualitative Analysis

A thematic content analysis was utilized to analyze teachers' responses to the open-ended questions. To conduct the analysis, we carefully followed the steps delineated by Braun and Clarke (2006) that included: (1) familiarization with the data; (2) data-driven preliminary codes (inductive approach); (3) identification of preliminary themes and sub themes; (4) reviewing and coming up with final themes; (5) aligning themes with representative quotes. The primary researcher first reviewed the open-ended responses, coded potential quotes, and developed

preliminary themes. These initial themes were then sent to a second researcher who reviewed the themes and quotes to assess representativeness. The researchers met over two meetings to further discuss the themes and representative quotes. Any disagreements in data interpretation were discussed until consensus was achieved.

CHAPTER 5: RESULTS

To examine NC Pre-K teachers' perceived preparedness to work with children with chronic illness and/or from low-income families, both quantitative and qualitative analyses were utilized. This chapter includes a description of the demographic data and the findings from the descriptive and inferential analyses. A thematic content analysis of the open-ended responses also revealed three distinct themes related to teachers' preparedness levels and resources. The presentation of the data follows the research questions asked within the study.

Demographic Information

NC Pre-K teachers based in the Eastern North Carolina and associated with the University EES hub served as the study participants. Ninety individuals responded to the survey; however, 12 were removed due to excessive missing data (i.e., not finishing past initial portions of the demographic section). Thus, for the final analysis, only 78 participants were included. The survey was sent out to 300 NC Pre-K teachers, hence the estimated response rate for the survey was 26%. All the respondents were female, with approximately half (51.3%) identifying as Black/African American followed by White/Caucasian (37.2%), Hispanic/Latino(a) (2.6%), Native American (2.6%), Biracial (2.6%), and Other (3.8%). The majority of teachers had a 4-year degree in early childhood/child development or education (approximately 47%), with a majority also having a Birth to Kindergarten license (83.3%) (See Table 2).

Table 2*Participants' Demographic Information*

Demographics	Descriptive Statistics
Gender: <i>Female</i> (<i>n</i> =78)	78 (100%)
Race/Ethnicity (<i>n</i> =78)	
White/Caucasian	29 (37.2%)
Black/African American	40 (51.3%)
Hispanic/Latino(a)	2 (2.6%)
Native American	2 (2.6%)
Biracial	2 (2.6%)
Other	3 (3.8%)
Age (<i>n</i> =76)	<i>M</i> = 46.01, <i>SD</i> = 10.58
Length of NC Residency (<i>n</i> =76)	<i>M</i> = 32.53, <i>SD</i> = 16.3
Education Level (<i>n</i> =78)	
4 yr. EC/CD degree	13 (16.7%)
4 yr. Education degree	24 (30.8%)
4 yr. degree in related field	8 (10.3%)
4 yr. degree in other field	6 (7.7%)
Some graduate coursework	5 (6.4%)
Graduate degree	22 (28.2%)
Licensure (<i>n</i> =78)	
Birth to Kindergarten (BK)	65 (83.3%)
B-K Add-on	7 (9%)
Pre-K Add-on	1 (1.3%)
Elementary	2 (2.6%)
Other	3 (3.8%)
Licensure Status (<i>n</i> =77)	
Residency license	9 (11.7%)
Initial (SPI)	14 (18.2%)
Continuing (SPII)	51 (66.2%)
Lateral Entry	3 (3.9%)

With regard to prior experience, 46% of participants had experience working with children with chronic illnesses, 80% had experience working with children with asthma, 8% had experience working with children with cancer, 28% had experience working with children with diabetes, and 53% had experience working with children with chronic illness that are from low-income families. Teachers had worked in the field of education for approximately 17 years and served as licensed teachers in an educational setting for seven years. On an average, respondents

had also taught in a NC Pre-K center for seven years. Participants had roughly 12 years of experience working in programs that served low-income families/communities.

Teachers' Perceived Preparedness and Knowledge

The first three research questions addressed how *prepared* and *knowledgeable* NC Pre-K teachers felt in supporting children with chronic illness, asthma, cancer, diabetes, and from low-income communities.

Teachers' Preparedness to Work with Chronically Ill Children

To examine teachers' preparedness to work with chronically ill children, we analyzed both teachers' composite scores on this scale and their individual mean responses. Composite scores were calculated by adding responses given to nine individual questions on the scale. The highest score of 45 on the composite measure indicated teachers' higher level of preparedness to work with chronically ill children. The overall composite score on this scale was 30.6 with a range from 14 to 45, indicating that teachers felt *somewhat* prepared to work with chronically ill children.

Means were also utilized to examine specific items that teachers felt least and most prepared to work with children experiencing chronic illness. Overall, participants' responses ranged between 3.13 and 3.86, closely corresponding to responses that were either "neutral" or "somewhat agree" on the Likert scale (see Table 3).

When the individual items were closely examined, teachers seemed to have relatively lower observed means for receiving enough resources and support to care for chronically ill children (3.18 and 3.13 respectively) and a higher observed mean (3.86) for their comfort in communicating with parents who have a child with a chronic illness. Thus, teachers indicated

that they had not received as many resources and support within the classroom, but they felt comfortable communicating with parents and guardians regarding their children’s needs.

Table 3

Overall Teacher Preparedness to Work with Chronically Ill Children

	<i>M</i>	<i>SD</i>
I feel confident in my knowledge of chronic childhood illnesses.	3.44	1.05
I feel prepared to work with young children who have chronic illnesses.	3.25	1.27
If an emergency occurred with a chronically ill child in my classroom, I feel prepared to handle the situation.	3.56	1.14
I feel the resources (tangible aid) I currently have within my school will enable me to care for chronically ill children.	3.18	1.04
I feel the support (intangible aid) I currently have within my school will enable me to care for chronically ill children.	3.13	1.09
I feel that the education I have received has provided me with the skills needed to work with children with chronic illnesses.	3.22	1.18
I believe I have had opportunity to reflect on my personal values and beliefs regarding my attitude towards chronic illnesses.	3.51	1.23
I am confident in my capacity to care for a child with a chronic illness in my classroom.	3.49	1.19
I feel comfortable communicating with the parents/guardians of a child with a chronic illness regarding their condition and needs.	3.86	1.03

Teachers’ Preparedness to Work with Children with Asthma, Cancer, and Diabetes

To examine teachers’ preparedness to work with children with asthma, cancer, and diabetes, we again analyzed composite scores for each of the scales and closely examined teachers’ individual responses for each item on the scales. Composite scores were calculated by adding responses given to nine individual questions on each of the scales. The highest score of

45 on the composite measure indicated teachers' higher level of preparedness to work with children with these specific ailments. Teachers seemed to have a relatively higher observed mean for asthma preparedness (36.29) and lower observed means for cancer and diabetes preparedness (25.83 and 28.85 respectively, see Table 4). Additionally, scale means were examined to further compare teachers' preparedness to support children with asthma, cancer, and diabetes. The composite scores were divided by nine, yielding the scale means. Similar findings were shown, in which teachers had a relatively higher observed mean for asthma preparedness (4.07) and lower observed means for cancer and diabetes preparedness (2.95 and 3.30, respectively). Thus, teachers indicated that they felt more prepared to support children with asthma than children with cancer or diabetes.

Table 4

Teachers' Composite and Scale Means for Asthma, Cancer, and Diabetes Preparedness

	Composite <i>M</i>	Composite <i>SD</i>	Scale <i>M</i>	Scale <i>SD</i>
Asthma	36.67	8.98	4.07	0.99
Cancer	26.51	10.29	2.95	1.14
Diabetes	29.72	10.29	3.30	1.18

Note. Composite scores ranged from 8 - 45.

Teachers' Preparedness to Work with Children with Asthma. Participants' responses on their preparedness to work with children with asthma ranged between 3.96 and 4.23, closely corresponding to responses that were "somewhat agree" on the Likert scale (see Table 5). When the individual items were closely examined, teachers seemed to have a relatively lower observed mean for preparedness to utilize an Asthma Action Plan (3.96) and a higher observed mean (4.23) for their comfort in communicating with parents who have a child with asthma. Thus, teachers indicated that they felt least prepared to use an Asthma Action Plan and most comfortable communicating with parents and guardians about their children's needs.

Table 5*Overall Teacher Preparedness to Work with Children with Asthma*

	<i>M</i>	<i>SD</i>
I feel knowledgeable and competent in my understanding of childhood asthma.	4.06	1.06
I feel prepared to care for children with asthma in my classroom.	4.05	1.05
I feel knowledgeable regarding the existence and purpose of Asthma Action Plans.	4.03	1.11
I feel prepared to utilize a child’s Asthma Action Plan within the classroom.	3.96	1.14
I feel confident in my ability to recognize the early warning signs of an asthma attack/episode.	4.08	1.01
I feel prepared to minimize a student’s contact with their asthmatic triggers (e.g. adjusting an activity)	4.09	1.14
I feel comfortable assisting a student with their inhaler/spacer or know who in the school is designated to assist with this process.	4.19	1.05
I feel comfortable discussing a child’s asthma condition with their classmates in a developmentally appropriate manner.	4.22	0.99
I feel comfortable communicating with the parents/guardians of a child with asthma regarding their condition and needs.	4.23	1.05

Teachers’ Preparedness to Work with Children with Cancer. Participants’ responses on their preparedness to work with children with cancer ranged between 2.51 to 3.42, closely corresponding to responses that were either “somewhat disagree” to “neutral” on the Likert scale (see Table 6). When the individual items were closely examined, teachers seemed to have a relatively lower observed mean for knowledge about cancer symptoms that may interfere with school performance (2.51) and higher observed means (3.42 and 3.42 respectively) for their comfort in communicating with parents who have a child with cancer and preparedness to implement creative activities for students who are absent due to their cancer. Thus, teachers

indicated that they felt least knowledgeable about the symptoms of cancer that can affect children’s school performance and most comfortable communicating with parents and guardians about their children’s needs.

Table 6

Overall Teacher Preparedness to Work with Children with Cancer

	<i>M</i>	<i>SD</i>
I feel knowledgeable and competent in my understanding of childhood cancer.	2.53	1.26
I feel prepared to care for children with cancer in my classroom.	2.61	1.23
I feel knowledgeable about the symptoms related to childhood cancer that may interfere with school performance and day-to-day functioning.	2.51	1.21
I feel comfortable supporting a child in the classroom who’s undergoing chemotherapy and/or radiation.	2.81	1.33
I feel prepared to work with parents regarding absenteeism that may be necessary due to cancer treatment.	3.37	1.45
I feel prepared to implement creative and inclusive activities for absent students with cancer.	3.42	1.38
I feel knowledgeable about the increased risk that infections have on immunocompromised children.	2.95	1.32
I feel comfortable discussing a child’s cancer diagnosis with their classmates in a developmentally appropriate manner.	3.00	1.35
I feel comfortable communicating with the parents/guardians of a child with cancer regarding their condition and needs.	3.42	1.31

Teachers’ Preparedness to Work with Children with Diabetes. Participants’

responses on their preparedness to work with children with diabetes ranged between 3.16 to 3.75, closely corresponding to responses that were either “neutral” or “somewhat agree” on the Likert scale (see Table 7). When the individual items were closely examined, teachers seemed to have relatively lower observed means for their ability to recognize the signs of high/low blood sugar

levels and knowledge on the roles and responsibility of monitoring students' blood glucose levels (3.16 and 3.17 respectively) and a higher observed mean (3.75) for their comfort in communicating with parents who have a child with diabetes. Thus, teachers indicated that they felt least prepared to recognize abnormal blood sugar levels and were less knowledgeable about who needed to help monitor those blood sugar levels, but felt most comfortable communicating with parents and guardians about their children's needs.

Table 7

Overall Teacher Preparedness to Work with Children with Diabetes

	<i>M</i>	<i>SD</i>
I feel knowledgeable and competent in my understanding of childhood diabetes.	3.20	1.26
I feel prepared to care for children with diabetes in my classroom.	3.43	1.24
I feel knowledgeable regarding the existence and purpose of Diabetes Action Plans.	3.26	1.29
I feel prepared to utilize a child's Diabetes Action Plan within the classroom.	3.33	1.22
I feel confident in my ability to recognize high and low blood sugar levels in a student with diabetes.	3.16	1.26
I feel knowledgeable about the dietary needs of children with diabetes.	3.31	1.27
I feel knowledgeable about who's role it is to monitor a student's blood glucose levels within my school.	3.17	1.27
I feel comfortable discussing a child's diabetes condition with their classmates in a developmentally appropriate manner.	3.44	1.19
I feel comfortable communicating with the parents/guardians of a child with diabetes regarding their condition and needs.	3.75	1.18

Teachers' Preparedness to Work with Children from Low-Income Families

After examining teachers' preparedness to work with children with chronic illnesses and specifically examining their preparedness to work with children with specific ailments, we decided to examine participants' overall preparedness to work with children from low-income families. Both composite score and individual means reported on this scale were investigated. Composite scores were calculated by adding responses given to six individual questions on the scale. The highest score of 30 on the composite measure indicated teachers' higher level of preparedness to work with children from low-income families. The overall composite score on this scale was 26.5 with a range from 6 to 30, indicating that teachers felt extremely prepared to support children from low-income families.

Participants' individual means on this scale ranged between 4.29 to 4.50, closely corresponding to responses that were either "somewhat agree" and "strongly agree" on the Likert scale (see Table 8). Teachers seemed to have a relatively lower observed mean for knowledge about the relationship between poverty and childhood chronic conditions (4.29) and a higher observed mean (4.50) for their preparedness to support children from low-income families. Thus, teachers indicated that they were least knowledgeable about the connection between poverty and childhood chronic conditions, but most prepared to care for children from low-income environments.

Table 8*Overall Teacher Preparedness to Work with Children from Low-Income Communities*

	<i>M</i>	<i>SD</i>
I feel knowledgeable and competent in my understanding of the role poverty plays in children's development.	4.43	0.77
I feel prepared to care for and/or support children from low-income families/communities.	4.50	0.78
I feel confident in my ability to recognize how poverty-related factors can undermine a student's school performance.	4.43	0.79
I feel comfortable reaching out to and interacting with the parent(s)/guardian(s) of a child from a low-income community.	4.45	0.76
I feel knowledgeable about how to teach low-income students social-emotional learning strategies.	4.42	0.77
I feel knowledgeable about the role poverty plays in the development or worsening of childhood chronic conditions.	4.29	0.89

Overall Differences Between Teachers' Preparedness Levels in Working with Children with Chronic Illness VS Children from Low-Income Families

To examine differences between teachers' preparedness to work with children with chronic conditions versus children from low-income families, we executed a paired sample t-test. Results showed that teachers felt more prepared to work with children from low-income families ($M = 4.52$) than children with chronic conditions ($M = 3.25$). This difference was significant, ($t(74) = 8.45, p < .001$), indicating teachers felt significantly more prepared to support children from low-income families than chronically ill children.

Overall Differences Between Teachers' Knowledge Levels in Working with Children with Chronic Illness VS Children from Low-Income Families

To examine differences between teachers' knowledge levels in working with children with chronic conditions versus children from low-income families, we also executed a paired samples t-test. Results showed that teachers felt more *knowledgeable* about working with children from low-income families ($M = 4.43$) than children with chronic conditions ($M = 3.46$). This difference was significant, ($t(75) = 7.43, p < .001$), indicating teachers felt significantly more knowledgeable on children from low-income families than chronically ill children.

Overall Differences Between Teachers' Preparedness to Work with Children with Asthma, Cancer, and Diabetes

To examine differences between the preparedness scores across the three ailments, researchers executed an ANOVA. Teachers' composite preparedness scores across the three chronic conditions were compared. There were significant differences in teachers' composite preparedness means, ($F(2, 150) = 43.98, p < .001$). Post hoc analysis with a Bonferroni adjustment revealed that composite preparedness scores for asthma were significantly higher than composite preparedness scores for cancer and diabetes at $p < .001$. Additionally, cancer preparedness scores were significantly lower than diabetes preparedness scores at $p < .03$, indicating teachers were significantly more prepared to support children with asthma and least prepared to support children with cancer (Refer to Table 4).

Overall Differences Between Teachers' Knowledge on Children with Asthma, Cancer, and Diabetes

To examine differences between the knowledge levels across the three ailments, researchers executed another ANOVA (see Table 9). There were significant differences in

teachers' knowledge level means, ($F(2, 150) = 48.46, p < .001$). Post hoc analysis with Bonferroni adjustment revealed that teachers' perceived knowledge on asthma was significantly higher than on cancer and diabetes at $p < .001$. Thus, participants felt more knowledgeable about childhood asthma than cancer or diabetes. They also felt less knowledgeable about childhood cancer than diabetes at $p < .001$. Teachers felt the most knowledgeable about asthma followed by diabetes then cancer.

Table 9

Average Perceived Knowledge Levels

	<i>M</i>	<i>SD</i>
Asthma	4.08	1.04
Cancer	2.52	1.27
Diabetes	3.20	1.26

Demographic Differences in Preparedness Levels

The fifth and sixth research questions explored the relationships between demographic variables (age, race, and previous years of teaching experience) and perceptions of preparedness. Teachers' age and race were not related to any preparedness levels across the chronic conditions and poverty. Previous experience in the education field positively correlated with teachers' composite preparedness to care for children with chronic conditions ($r = .25, p = .03$). Thus, the more experience teachers had in the field, the more prepared they felt to support a child with a chronic condition. Years of experience in the education field also positively correlated with teachers' preparedness scores ($r = .23, p = .05$) and confidence levels ($r = .38, p < .001$) to work with chronically ill children, indicating that teachers with more experience in the field of education felt more prepared and confident to work with children with a chronic condition. Similarly, experience in the education field also positively correlated with the various individual

items on the different scales for asthma, diabetes, and cancer and working with low-income children. Feelings of preparedness in utilizing a child's Asthma Action Plan (Item No. 4, $r = .25$, $p = .03$), feelings of preparedness in caring for a child with diabetes in the classroom (Item No. 2, $r = .26$, $p = .03$), feelings of comfort in discussing a child's diabetes condition with their classmates in a developmentally appropriate manner (Item No. 8, $r = .27$, $p = .02$), and feelings of knowledge in the role poverty plays in the development or worsening of childhood chronic conditions (Item No. 1, $r = .28$, $p = .02$). Thus, across all the different domains, having more years of experience in the field of education was positively correlated with feelings of preparedness.

Teachers' Personal Experiences

The final research question addressed the supports and resources teachers currently had and needed to support children with chronic conditions and/or from low-income families. Two researchers analyzed the qualitative responses. Participants were prompted to answer specific questions in an open-ended fashion that tapped into their current and needed supports. Fifty-nine participants answered the open-ended questions. To facilitate the analysis, we conducted a thematic content analysis and carefully followed the steps delineated by Braun and Clarke (2006) that included: (1) familiarization with the data; (2) data-driven preliminary codes (inductive approach); (3) identification of preliminary themes and sub themes (4) reviewing and coming up with final themes; (6) aligning themes with representative quotes. Thus, based on the analysis, three strong themes revolving around teacher preparedness and supports evolved: (1) varying sources of support, (2) perceived training effectiveness, and (3) recommendations for professional development opportunities (see Appendix E). Within the first theme, a couple

strong sub-themes also manifested. These have been addressed within the table and the descriptive text.

Theme 1: Varying Sources of Support

Throughout the responses, participants described various sources of support when working with children with chronic conditions and/or from low-income families. Some of this support was derived from tangible resources, such as books or research materials, while some came from more intangible sources, such as online communities or family interactions. Additionally, teachers' responses alluded to the various microsystems they could tap into for support, such as the child's family, school administration, and the community. Their responses demonstrated the differing reserve of resources teachers may draw upon based on their location and access. However, several teachers (n = 7) stated they were not willing to reach out for support, while a few teachers (n = 8) were unsure of where to find resources. As one respondent stated, "I would be willing to reach out for help and resources. At this time, I'm not sure where to exactly to reach out to." While most teachers described their use of external resources to support for their students, these sentiments were not universal. Nonetheless, when discussing the potential resources they may use to care for children with chronic conditions and/or from low-income families, many teachers described various tangible and intangible supports.

Subtheme 1: Tangible versus Intangible Support

In regard to tangible resources, books and research materials served as common examples. From the library to internet searches, teachers acknowledge the different places they could find tangible resources to aid their information search. Other recommendations like digital resources, such as those from the Harvard Center on the Developing Child, and various webinars offered additional ways to obtain physical information on chronic conditions or poverty.

Tangible resources also included actual workshops and trainings that teachers attended. Through trainings, teachers learned important information on poverty or chronic conditions, which they could then apply in their interactions with their students. That knowledge became tangible as it was implemented within the classroom through evidence-based practices.

Intangible resources focused on the *relationships* teachers had with a wide variety of people. One constant avenue of support was communicating with parents. Teachers valued their relationships with parents, which allowed them to elicit information about their student's needs. Additionally, developing beneficial relationships with school administration served as a necessary resource for teachers as they navigated complex experiences within the classroom. Other relational supports included online communities, professional learning communities, counselors, nurses, social workers, and coworkers. These relationships spread across disciplines and through different virtual and in-person mediums. By tapping into existing relationships, teachers seemed to feel as though they might derive necessary support to better serve their students. Importantly, effective relationships offered teachers a safe place to seek out support and learn new resources that could aid with student success.

Subtheme 2: Familial, Administrative, and Community Support

Teachers' breakdown of their various support systems resonated with Bronfenbrenner's concept of microsystems, thus illustrating the different areas in which families, administration, and the community can provide support within the classroom. For instance, close connections and working with children's families was a way to ensure safety and inclusion within the classroom. Communicating with parents about "the best resources...to learn about the illness" or to gain insight into their perspectives offered educators a direct connection to the most prevalent people in their students' lives. As one teacher said, she is "always in permanent communication

with [her student's] parents in order to determine if they need help or support.” Without an effective line of communication, teachers are required to read and interpret situations without the full picture. The support from parents and families served as the most common resource noted by teachers, thus suggesting the importance of fostering healthy and regular communication between educators and parents.

Teachers also endorsed the use of administrative support within their NC Pre-K programs. Ways to obtain support included speaking with administration, local NC Pre-K staff, and NC Pre-K contractors (such as One Place). These supervisors offered experience and access to resources that teachers might not have otherwise known existed, both within the school and the community. For example, one respondent noted that “in our school we have a plan to follow in case of any emergency of one of our children.” Within that center, the administration developed a set of plans that promoted safety, which then encouraged this particular teacher to consult them for guidance regarding how to manage their classroom needs. By ensuring that effective policies exist within school centers, administrators can become a source of support as teachers attempt to implement those health and safety measures within the classroom.

The community also became a source for support, as teachers often referenced community programs and organizations as potential resources. Organizations like Smart Start, the Ronald McDonald House, Project Enlightenment, North Carolina Early Childhood Foundation, and county Health Departments were noted throughout the responses. A participant also endorsed the use of a relative's nonprofit called “We Care We Share” as a way to provide support for low-income children. Additionally, teachers recommended actively engaging within the community through “a community fundraiser to help families with gas, housing expenses and treatments,” “food banks, outreach programs...,” and “faith-based facilities.” Many participants

displayed a willingness to acquire support from the community to gain the necessary resources their students and families needed.

Theme 2: Perceived Training Effectiveness

Two survey questions directly asked teachers to discuss their preservice education and ongoing professional development to discern if they were provided with adequate preparation in working with children with chronic conditions and/or from low-income communities. The teacher responses varied, as some teachers felt prepared from their previous and ongoing education (n = 36), while others felt as though their education did not provide them with enough training (n = 27). When examining those who felt prepared from their training experiences, 24 teachers felt adequately prepared to address both poverty and chronic conditions within the classroom, while 12 teachers felt more prepared to work with children from low-income households than children with chronic conditions. As such, clear differences in how teachers perceive the effectiveness of their training exists within this population, thus providing varying levels of preparedness to support these children in the classroom.

In regard to preservice education, numerous participants discussed a lack of focus within their postsecondary courses on poverty and/or childhood chronic conditions. They discussed receiving “very little formal training” and that the education they did receive was “limited and not specific.” When the topics were discussed, some participants felt they were covered in too little detail to adequately prepare or train teachers on how to adjust their classrooms to meet the needs of children with chronic conditions and/or from low-income families. As one participant noted, “I felt like it was very superficial discussions and examples.” Without useful examples or in-depth discussions, preservice courses often glanced over how chronic conditions or poverty might look in the classroom or affect academic outcomes. As most participants held a four-year

degree (n=51), the lack of perceived training effectiveness within these content areas potential applies more for undergraduate education, where preservice teachers are expected to learn the foundational skills of creating lesson plans and understanding child development in general terms. With graduate education, however, educators may have more time to develop specialized knowledge about specific marginalized populations. One participant with some graduate education detailed this differentiation by noting “in my undergraduate program for ECE [Early Childhood Education] the information on chronic illness and low-income families was scarce...and now in my doctorate level program we are able to dive deeper into these topics.” As such, a difference in the level of training may also impact how teachers report their feelings of preparedness.

Regarding professional development, these training opportunities seemed to vary between participants, mainly based on school center and community differences. For instance, one participant noted that they were “very fortunate to have access to professional development opportunities through Smart Start of [redacted] County, [redacted] County Schools, and the state of North Carolina.” Numerous other responses echoed similar sentiments that resources like Prosolutions and other webinars offered tools for supporting children mainly from low-income communities, but also sometimes for those experiencing a chronic condition. Through their school center and community resources, some teachers were able to obtain ongoing professional development training that continually improved their feelings of preparedness. However, these opportunities were not found throughout all the responses. Rather, other teachers discussed that they “had not found many educational opportunities focused on these topics alone” or had no idea where to find those engagement opportunities. One teacher stated, “the ongoing professional education does not...prepare me to meet the needs of children with illness, or poverty.”

Evidently, the ongoing professional development opportunities within NC Pre-K differ, in that some teachers receive training that provides them with useful information on supporting children with chronic conditions and/or from low-income communities, while others do not receive enough training within these areas, thus leaving them with less information on the topics.

Subtheme 1: Reliance on Experiential Learning

Although preservice, in-service, and ongoing trainings were considered important by the teachers for their preparedness, a strong subtheme on reliance on experiential learning also evolved. When asked if their preservice education or ongoing professional development prepared them to care for children with a chronic illness and/or from low-income families, many echoed similar sentiments of “I feel much of what I know has been taught by me through experience” and “I believe my...hands on experience has played a major role.” Moreover, another participant noted their previous experience working in a hospital as a basis for their preparedness to work with children with chronic illnesses. However, this experience is not universal and serves as a unique benefit from their professional background. Rather than relying on the education provided to them through school or professional development, many teachers prioritized their experience in the classroom as the key to their preparedness.

Theme 3: Recommendations for Professional Development Opportunities

When asked what measures should be taken to improve teachers’ comfortability in caring for children with chronic conditions and/or from low-income families, participants listed a variety of potential resources and supports. The most common response involved training, both through professional development opportunities and from actual medical professionals. One participant recommended, “a medical professional coming to the school and giving in person training” on different chronic conditions. In addition to training from medical professionals,

some teachers wanted to learn “how to adapt activities to meet the needs of medically fragile children,” as well as “the developmental milestones he/she may reach differently.” More than simply learning about the chronic conditions, educators desired concrete information on how to ensure their classrooms could adapt to the medical needs of these children. Teachers also discussed a desire for “more real hands-on situations” to foster greater applicability of knowledge within the classroom. Additional education and practice in application go hand-in-hand to ensure that educators have the knowledge and ability to create safe and inclusive classrooms.

Recommendations for training also extended to improving interactions between teachers and parents. As became evident throughout the responses, teachers rely on communication with parents and guardians to feel prepared in supporting their students. However, effective parent-teacher relationships must be fostered through mutual respect and communication. As one respondent suggested, “we should also meet with the families to discuss needs and procedures.” Actively working with parents through in-person interactions serves as a necessary step in ensuring teachers have the information they need on students’ health needs or home environmental stresses. By consulting with parents, teachers also learn practical information, such as which medications and emergency phone numbers to have on hand. Teachers obtain that information from parents, but without strong communication channels, that information may be lost, leaving teachers without adequate knowledge of a student’s medical and personal needs. To further develop parent-teacher relationships, “family engagement trainings and workshops” offer a potential avenue of focus. By encouraging ongoing professional development on useful techniques for promoting family engagement, teachers can place a priority on incorporating parents within the classroom to improve safety and healthy development. Educators cannot know

everything about every child, but they can utilize familial support to obtain the most important information that might inhibit or improve health and academic outcomes.

Educators also discussed the need for tangible resources in the form of resource guides. Particularly, “electronic or print resources on different conditions” and a “list of trusted/informative website[s]” were noted as potential supports. By developing resource guides on different conditions, how symptoms may manifest in the classroom, and ideas on adapting classroom environments to meet those needs, teachers could have the information readily available without extraneous research. A similar sentiment was expressed for resources on children from low-income communities. For instance, “teachers should be provided with information on trauma” and “digital and print information on at risk children.” Rather than requiring teachers to search this information on their own, accessible information packets and resource guides can provide a baseline level of information for teachers to apply within the classroom. Information on trauma and asthma are available on the Internet, but providing those sources in a quick and understandable manner can make all the difference in how teachers utilize the information.

CHAPTER 6: DISCUSSION

The current study focused on examining NC Pre-K teachers' preparedness to support children with chronic conditions and/or from low-income families. Given the amount of time children spend in school, teachers often must serve as advocates and treatment managers, bridging the gap between the home and school environments. Their preparedness, knowledge, and comfort in working with vulnerable children hold profound implications for children's development and safety that can influence long-term outcomes. As inclusive classrooms become a more utilized policy initiative, teachers must be prepared to work with diverse populations. Overall, the results revealed that NC Pre-K teachers perceived themselves as more prepared to support children from low-income families than those with chronic conditions. Additionally, they felt more prepared to support children with asthma than children with cancer or diabetes. Teachers' experience in the field of education also correlated with their preparedness levels, in which the more experience teachers had, the more prepared they felt to support children with chronic conditions and from low-income families. Teachers' personal experiences, as described through the open-ended responses, provided further insight into these trends. These findings add to the literature by illustrating the different preparedness levels NC Pre-K teachers may have when working with children from low-income families and/or with chronic conditions.

Within each domain (chronic illness, asthma, cancer, diabetes, and low-income children), results indicated that teachers felt more prepared for certain caring actions than others. For example, teachers felt least prepared to utilize an Asthma Action Plan within the classroom. However, according to the CDC (2018), personalized asthma care plans remain the most effective way to manage treatment and prevent asthma attacks. If teachers are untrained on how to implement this information within their classroom, children's safety and well-being may be

compromised. Similarly, on the cancer scale, teachers felt least knowledgeable about the symptoms of cancer that can affect children's school performance. As noted by Kaffenberger (2006), the effects of cancer treatment may increase learning difficulties for children, which may undermine school performance. Therefore, if teachers are unaware of the effects that cancer symptoms can have on a child's behavior, they may then be more likely to attribute educational and social deficits to the student rather than their medical treatment or condition. Since teachers cannot know every symptom of every chronic condition, the need for more foundational knowledge in preservice education and easy access to professional development courses becomes all the more vital for teachers to obtain this information.

Across the three specific chronic conditions, teachers felt the most prepared to communicate with the parents/guardians of children with asthma, cancer, and diabetes. As reflective of Bronfenbrenner's ecological systems theory, parent-teacher communication serves as an important mesosystem interaction to improve children's well-being (refer to Figure 2). In this study, teachers recognized the need to communicate with parents to discuss important matters related to their chronic conditions. This finding was further supported by teachers' open-ended responses, in which they considered the family as the best resource to determine a child's needs and recommended staying in constant communication with children's parents. As children primarily develop within the family, parental communication regarding their child's condition or their home environment allows teachers to understand their student's greatest needs. By fostering a communicative relationship with a child's family, teachers recognized they could learn the most prevalent and useful skills for adequately supporting the child within the classroom. Early childhood education classrooms should incorporate family-centered approaches, which encourage educators and families to work together to ensure the best outcomes for their children

(Dunst, 2002). To implement this philosophy, teachers must feel comfortable communicating with parents to develop a collaborative relationship and learn vital information for student success. Nonetheless, other studies have found that communication practices between schools and families tend to be subpar, especially concerning health needs (Bruzzese et al., 2010; Hinton & Kirk, 2015). Effective communication requires teachers to know which questions to ask families, which may be harder when teachers are unprepared and unknowledgeable about childhood chronic conditions. While the teachers within this study reported being very willing to reach out to parents, the survey did not assess actual communication practices. Future studies should measure actual communication trends between parents and teachers to discern how effectively they discuss children's medical or socioemotional needs.

In examining the differences in teachers' preparedness and knowledge between children with chronic conditions and children from low-income families, the study found that teachers were more prepared and knowledgeable about children from low-income families. Although no known research prior to this study has examined teachers' preparedness and knowledge differences between children with chronic conditions and those from low-income families, the higher preparedness to support children from low-income families may derive from the eligibility criteria of NC Pre-K programs. Based on the criteria, at least 80% of students must come from families whose gross incomes are at or below 75% of the State Median Income level (NCDHHS, n.d.-c). Therefore, teachers' education and ongoing professional development are more likely to prioritize the developmental needs of low-income children given the criterion. Additionally, as the COVID-19 pandemic has disproportionately affected low-income families, it remains possible that teachers have received more recent ongoing professional training on this topic to better accommodate the substantial percentage of low-income students in their

classrooms. The influx and recency of information on how the pandemic affects low-income families could play a role in teachers' perceived knowledge and preparedness levels. This further speaks to the level of training NC Pre-K teachers often receive regarding the needs of children from low-income families, along with how chronosystem factors can influence the types of educational materials teachers receive.

Similar themes were found in the open-ended responses, in which teachers often discussed more resources related to supporting impoverished families than children with chronic conditions. Many of them also noted receiving more professional development that focused on the needs of children experiencing poverty. Given the high level of preparedness to support children from low-income families within this population, future studies should examine what aspects or characteristics of their training might contribute to this heightened preparedness. As numerous studies show that teachers sometimes hold negative perceptions about children and parents from low-income families, which may alter their ability to support the child and communicate with the parents (Chandler, 2014; Gorski, 2012; Steinberg & Krumer-Nevo, 2020), these trainings or skills could provide insight into how we can improve teachers' views of poverty in other programs or school systems.

The finding that teachers are less prepared and knowledgeable regarding chronic conditions is supported by previous research. Studies looking at both preservice (Stalls et al., 2018) and in-service (Neuharth-Pritchett & Getch, 2001) teachers suggest they do not feel highly prepared to support children with chronic conditions. As most teacher education programs only briefly discuss the management of chronic conditions in the classroom (Adams & Bourke, 2021; Clay et al., 2004; Hinton & Kirk, 2015; Neuharth-Pritchett & Getch, 2001; Papadatou et al., 2002), teachers are not provided with enough in-depth information on how to support children

with these illnesses. Additionally, most professional trainings do not provide adequate information on the learning or social needs of children with chronic conditions (Clay et al., 2004; Adams & Bourke, 2021). As such, the lack of preservice education or professional development on childhood chronic conditions may play a role in the findings that teachers are less prepared and knowledgeable about these illnesses. These sentiments were further supported in the open-ended responses, in which teachers reported receiving little preservice education on chronic conditions and that many of their professional development trainings focused on the effects of poverty. Given the mission of NC Pre-K programs to improve school readiness in high-risk populations, they potentially place a greater focus on ensuring teachers are prepared to support children from low-income families. However, their programs still admit children with chronic conditions, thus demonstrating a greater need for professional development opportunities in that realm as well.

Our findings also illustrated the different preparedness and knowledge levels teachers may have between different chronic conditions. Teachers felt most prepared to work with children with asthma and least prepared for children with cancer. This finding aligned with previous research that suggests teachers feel more comfortable and knowledgeable in supporting children with asthma (Nabors et al., 2008; Stalls et al., 2018). Given the higher prevalence of asthma in child populations (Miller et al., 2016), teachers may be more familiar with the condition based on their previous knowledge. Regarding cancer, the different types of cancer and the lower prevalence rates (ACS, 2021) may suggest a lack of familiarity with the different symptoms and treatments, thus leading to lower preparedness and knowledge levels. Nonetheless, teachers have the potential to interact with children of any chronic condition, regardless of prevalence rates, thus demonstrating the need for increased education. This also

holds implications for lesser-known or prevalent conditions, such as sickle cell disease, in that teachers might hold even less preparedness in these situations (Stalls et al., 2018). Further research should also examine other factors that might lead to different preparedness levels across chronic conditions, such as prevalence rates or previous experience with the condition.

Additionally, the study showed that teachers' experience in the field of education played a role in their preparedness levels. The more experience teachers had in the field, the more prepared they were to support children with chronic illnesses and from low-income families. Specific tasks teachers felt more prepared to complete included utilizing an Asthma Action Plan, caring for children with diabetes, and understanding the role poverty plays in the development or worsening of childhood chronic conditions. Interestingly, as teachers gained more teaching experience, they also felt more prepared to discuss diabetes with students in a developmentally appropriate manner. This contradicts Papadatou et al.'s (2002) finding that educators with more teaching experience did not believe that open discussions about a student's chronic illness should occur within the classroom. Given that study occurred approximately 20 years ago, further research on teachers' beliefs in openly discussing chronic illnesses is warranted.

Nonetheless, other studies suggest that as teachers gain more experience, their effectiveness in the classroom also increases and they display more preparedness in their content areas, pedagogy, classroom practices, and preparedness to teach young children with disabilities (Chadwell et al., 2020; Harris & Sass, 2011; Kini & Podolsky, 2016; Organization for Economic Cooperation and Development, 2017). While these gains mainly occur within the first five years of a teacher's career, they continue to increase during the second and third decades. As the average time in the education field for these participants was 17.5 years, more veteran teachers may have a larger repertoire of experiences to pull from when encountering diverse students,

which may provide them with more perceived preparedness and confidence. Although these studies do not directly address teachers' preparedness for chronic conditions or poverty, they suggest that teachers gain more experience and confidence in the classroom over the years. As a result, these benefits of teaching experience potentially acted as a source of preparation for the veteran teachers. Teachers' personal experiences also illustrated the importance of classroom experience and preparedness, in that they considered their experience in the classroom as the key to their preparedness rather than other learning opportunities. Ultimately, these findings raise questions for new teachers who may not have as much experience to draw upon in these situations. Without as much previous classroom experience, these teachers may feel less prepared to support their students who have chronic conditions or come from low-income families. As such, this study illustrates the importance of preservice education in providing foundational coursework on the manifestation of chronic conditions and poverty in childhood, thus providing new teachers with baseline knowledge on these topics to utilize in the classroom.

In considering potential resources to better aid teachers, numerous recommendations for professional development opportunities were discussed. As teachers were less prepared and knowledgeable about childhood chronic conditions, the most robust recommendation involved providing teachers with training from medical professionals. By receiving professional training from healthcare workers, such as doctors or nurses, teachers felt they might receive more concrete information on how to adapt their classrooms to meet the medical needs of these children. In support of this consideration, Hinton and Kirk (2015) found that education programs delivered by healthcare professionals were successful in increasing teachers' knowledge and confidence to support their students with chronic conditions. Increasing collaboration between

school systems and healthcare professionals can help improve teachers' knowledge of chronic conditions, which may then increase their preparedness levels.

Although school nurses might seem like a potential way to improve medical communication and increase safety levels (Hill & Hollis, 2012), many schools only employ part-time nurses due to budgetary cuts, which leaves teachers without a resource during those off-hours (Reznik & Halterman, 2016). Moreover, NC Pre-K programs are located within non-public school settings, thus, these teachers have no access to trained nurses, compounding the problem further. As such, creative approaches that improve school and healthcare communications without increasing financial costs are of paramount interest. Potentially, child life specialists could play an important role in bridging this relationship. Child life specialists help children and families cope with stress related to acute and chronic conditions by providing evidence-based and developmentally appropriate explanations and interventions (Association of Child Life Professionals, n.d.). By developing relationships between schools and child life specialists, these professionals can come into classrooms to explain medical information to students through age-appropriate language and interactive activities. Even through virtual means, teachers can receive support from child life specialists on how to implement these types of activities within the classroom. The specialized training in child development and healthcare terminology situates child life specialists as a potentially valuable resource for teachers. Nonetheless, the inclusion of these partnerships needs to remain easily accessible for teachers so as to provide support without requiring an excessive workload on the educators themselves. Early childhood education centers should enact policies that encourage healthcare partnerships with these professionals or consider opening positions for child life specialists within the school system to further enhance support options for teachers and students.

While the study found that teachers were less prepared to support children with chronic conditions, especially those with cancer and diabetes, there remain certain caveats when discussing supports or resources teachers may need to improve their preparedness. Within the open-ended responses, some teachers noted that they would not be willing to reach out for resources or support within the classroom. Although not much explanation was provided as reasoning, it may be that they are unaware of potential resources in the community or are unable to take on the extra workload to find them. Teachers need more access to support, such as resources guides on different chronic conditions or a list of community programs. Importantly, teachers not only need access to more training opportunities, but also extra time for those trainings. To prevent burnout and overload, a balance must occur in encouraging teachers to engage in more learning while also providing the time for that learning to occur.

This harkens upon a key point regarding teachers' preparedness needs, in that resources and supports should be provided in a way that minimizes educators' workload to the greatest extent possible. Research suggests that early education teachers' well-being decreases when they are overloaded with administrative tasks or lack needed resources (Ylitapio-Mantyla et al., 2012) and that the intensification of teaching may contribute to a sense of overwhelming pressure (Bullough et al., 2014). As one teacher in this study noted, "easy access to classroom support/education or resources to provide to families that doesn't add extra amounts of workload to the teachers" was important. Additionally, the COVID-19 pandemic has increased many early childhood educators' emotional, financial, and mental health stress due to heightened demands on teachers and a general lack of resources (Hanno et al., 2022; Swigonski et al., 2021). The pandemic has likely exacerbated feelings of stress and burnout, leading some NC Pre-K teachers to feel less willing to reach out for resources or research each student's individual needs. As

such, exosystem factors due to the pandemic, such as school board and governmental policies on COVID-19 mandates or mental health resources for educators, can affect teachers' overall well-being and burnout levels. In developing resources or providing trainings, it must be done in a way that supports teachers' preparation without overloading their already busy schedules. For instance, employing the use of easily accessible resources guides on different chronic conditions and at-risk children may provide teachers with quick, but detailed information on the different needs related to a diverse array of topics without overstraining their capacities.

Limitations

The findings of this study should be considered in light of its limitations. The focus on NC Pre-K programs meant that teachers in this study were likely more primed to work with children from low-income families given the eligibility criteria of the program. While the specific focus on these participants was important for the exploratory nature of this study, these findings may not generalize to all prekindergarten teachers. Additionally, the sample of participants in this study was entirely female. While approximately 97% of preschool and kindergarten teachers are female (U.S. Census Bureau, 2022), the male or nonbinary perspective would be useful for future research.

There also was a lack of variability in teachers' educational attainment, which serves as a limitation. The majority of teachers held a bachelor's degree, while a smaller subset had graduate experience. While the quantitative results showed that teachers were more prepared to work with children from low-income families, this population is not as prepared to support children with chronic conditions. However, based on some of the qualitative data, attaining higher degrees might matter, as it can influence teachers' preparedness and knowledge levels. Given the higher percentage of teachers with a bachelor's degree within the study, as compared

to those with graduate education, this could potentially explain the lack of relationship found between chronic illness and poverty preparedness scores. As the qualitative responses suggested, higher educational attainment can provide the opportunity to examine more specialized populations, so teachers with only a bachelor's degree may not be able to delve into that information during their preservice education, thus leading to lower levels of preparedness for children with chronic conditions. With the lack of variability in educational attainment in this sample, however, that hypothesis could not be tested. Future research should examine if teachers' educational attainment relates to their preparedness level to work with vulnerable children.

The study also did not assess county-level information. Although most counties within Eastern North Carolina experience persistent poverty, a few counties do not have as pervasive of an issue. Therefore, some counties may possess greater financial capacities and resources for their teachers than others. While the state covers approximately 60% of NC Pre-K program costs, individual counties are required to fund the remaining 40% (Barnett, 2019). As such, poorer counties may not have the necessary financial capacity to fund every low-income student in need of services or have access to as many resources for their teachers. Future research should take into account county-level information to examine or control for these differences.

There were also limitations with regard to the measured chronic conditions. While the study focused on asthma, cancer, and diabetes due to both their prevalence and name recognition, this did not represent the exhaustive list of childhood chronic conditions. Due to the scope of this study, focusing on three chronic conditions and the specific steps needed with those conditions served an important function in furthering the literature on teacher preparedness. However, the inclusion of lesser-known chronic conditions, such as sickle cell disease (Stalls et

al., 2018), could produce different results. Further research on less prevalent chronic conditions is warranted to better understand the potential differences in teachers' preparedness levels.

Conclusion

This study provided new insight into NC Pre-K teachers' perceived preparedness to work with children with chronic conditions and/or from low-income families. It is important for teacher training programs and school administrations to support teachers' proactive learning about chronic conditions and poverty. Providing more professional development programs that discuss niche topics, such as childhood chronic conditions, could provide greater levels of support. However, Roberts et al. (2020) recommended that preschool teachers engaging in professional development should also be provided an opportunity to express their emotions and receive feedback within professional development courses to prevent burnout and lowered self-efficacy. Rather than simply learning information on chronic conditions or poverty, teachers should be encouraged to reflect on these concepts and be able to engage in a discourse with other professionals for emotional and practical support. Teachers can better support themselves and their students when they are encouraged to expand their knowledge and reflect on their experiences (Gartin & Murdick, 2009; Mangiante, 2011). Utilizing hands-on learning, reflective practices, and specific examples can provide teachers with practical knowledge to implement within the classroom.

Increased attention is warranted in providing teachers with more resources to aid classroom management of chronic conditions. While preparedness levels of children with chronic conditions were low within this study, teachers recommended a variety of resources that could improve their preparedness and knowledge of these conditions. The creation of resource guides and training on improving communications with parents were two recommended

approaches that could support teachers' continuing education. Digital resource guides that briefly discuss different childhood chronic conditions, such as common symptoms or classroom management strategies, can provide teachers with a foundation of knowledge on their role in chronic illness management. This can then improve how teachers communicate with families or medical professionals, providing them an opportunity to ask informed questions without requiring extensive research. Healthcare professionals and educators should work together to create these resources, ensuring they are applicable both to the chronic conditions and classroom management of those conditions. Similarly, ongoing professional development training should provide more resources on fostering effective communication between families. As family-centered approaches encourage an equal partnership between educational professionals and families, teachers must continue developing communication skills that enhance trust and respect for children and their families.

Additionally, supporting teachers' continuing education through higher degree attainment could further improve teacher preparedness. As discussed by one participant of this study, they were able to delve into specific knowledge on marginalized populations within their graduate coursework, topics not covered in their undergraduate education, which aided their preparedness to work with vulnerable children. By ameliorating educational and financial barriers for teachers, they may be encouraged to obtain higher levels of education, which may improve their feelings of preparedness within the classroom. At the same time, years of experience in the field of education also play a role in teachers' preparedness levels. As teachers continue working within prekindergarten classrooms, they may gain the necessary skills to interact with diverse and vulnerable groups of children that are not easily taught within their preservice education. Even with greater focus given to higher levels of education, some aspect of preparedness comes from

being in the classroom and learning through experience. By encouraging higher educational attainment and advocating for increased pay opportunities, teachers may feel more supported within the classroom, thus increasing the longevity of their careers and allowing them to gain the necessary experience to support these students. Higher levels of educational attainment and more teaching experience both provide teachers with practical and experiential knowledge to apply in the classroom, thus leading to more prepared teachers who can support children's diverse needs.

Teaching can be a highly demanding, but extremely rewarding, career. However, as higher expectations are placed on early education teachers, without equal growth in financial support, the level of stress and burnout may continue to rise. In aiming to improve students' health and well-being, we must also prioritize teachers' needs and provide supports that allow them to be as successful in the classroom as possible. Teachers cannot be expected to know everything, but we can continue to support them in further developing their feelings of preparedness to support all children, especially those with dynamic needs.

REFERENCES

Adams, N., & Bourke, R. (2021). Teachers' joy of teaching children with a chronic illness: The opportunities to learn. *International Journal of Inclusive Education*, 1-14.

<http://doi.org10.1080/13603116.2020.1867380>

Akinbami, L. J., Moorman, J. E., Bailey, C., Zahran, H. S., King, M., Johnson, C. A., & Liu, X. (2012). *Trends in asthma prevalence, health care use, and mortality in the United States, 2001-2010*. National Center for Health Statistics.

<https://permanent.fdlp.gov/gpo56410/db94.pdf>

American Academy of Pediatrics. (2021, December 1). *Caring for children and youth with special health care needs during the COVID-19 pandemic*.

<https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/clinical-guidance/caring-for-children-and-youth-with-special-health-care-needs-during-the-covid-19-pandemic/>

American Academy of Pediatrics. (2022, January 27). *COVID-19 guidance for safe schools and promotion of in-person learning*. [https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/clinical-guidance/covid-19-planning-considerations-return-to-in-person-education-in-](https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/clinical-guidance/covid-19-planning-considerations-return-to-in-person-education-in-schools#:~:text=The%20AAP%20strongly%20recommends%20that,living%20in%20under%20Dresourced%20communities)

[schools#:~:text=The%20AAP%20strongly%20recommends%20that,living%20in%20under%20Dresourced%20communities](https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/clinical-guidance/covid-19-planning-considerations-return-to-in-person-education-in-schools#:~:text=The%20AAP%20strongly%20recommends%20that,living%20in%20under%20Dresourced%20communities).

American Academy of Pediatrics & Children's Hospital Association. (2022, February 10).

Children and COVID-19: State data report.

<https://downloads.aap.org/AAP/PDF/AAP%20and%20CHA%20->

[%20Children%20and%20COVID-19%20State%20Data%20Report%202.10.22%20FINAL.pdf](#)

American Cancer Society. (2017, October 13). *Helping your child manage school during cancer treatment*. <https://www.cancer.org/treatment/children-and-cancer/when-your-child-has-cancer/during-treatment/keeping-up-with-schoolwork.html>

American Cancer Society. (2021). *Cancer Facts & Figures 2021*. <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2021/cancer-facts-and-figures-2021.pdf>

Association of Child Life Professionals. (n.d.). *What is a child life specialist?* <https://www.childlife.org/the-child-life-profession>

Baker, C. N., Tichovolsky, M. H., Kupersmidt, J. B., Voegler-Lee, M. E., & Arnold, D. H. (2015). Teacher (mis)perceptions of preschoolers' academic skills: predictors and associations with longitudinal outcomes. *Journal of Educational Psychology, 107*(3), 805-820. <http://doi.org/10.1037/edu0000008>

Barnett, S. (2019). *Barriers to expansion of NC Pre-K: Problems and potential solutions*. The National Institute of Early Education Research (NIEER). https://nieer.org/wp-content/uploads/2019/01/NIEER_North_Carolina_2019.pdf

Bloch, D., & Chahroudi, A. (2019). Poverty and chronic illness: Why safety net programs matter. *Pediatric Research, 85*, 743-744. <http://doi.org/10.1038/s41390-019-0363-2>

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>

Brooks-Gunn, J., Rouse, C. E., & McLanahan, S. (2007). Racial and ethnic gaps in school readiness. In R. C. Pianta, M. J. Cox, & K. L. Snow (Eds.), *School readiness and the*

- transition to kindergarten in the era of accountability* (pp. 283–306). Paul H Brookes Publishing.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32(7), 513–531. <https://doi.org/10.1037/0003-066X.32.7.513>
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, 22(6), 723-742. <https://doi.org/10.1037/0012-1649.22.6.723>
- Bruzzese, J.-M., Unikel, L. H., Evans, D., Bornstein, L., Surrence, K., & Mellins, R. B. (2010) Asthma knowledge and asthma management behavior in urban elementary school teachers. *Journal of Asthma*, 47(2), 185-191, <http://doi.org/10.3109/02770900903519908>
- Bullough, R. V. Jr., Hall-Kenyon, K. M., MacKay, K. L., & Marshall, E. E. (2014) Head start and the intensification of teaching in early childhood education. *Teaching and Teacher Education*, 37, 55-63. <https://doi.org/10.1016/j.tate.2013.09.006>
- Canter, K. S., Alderfer, M., Schultz, C. L., & Kazak, A. (2018). Cancer. In S. G. Forman & J. D. Shahidullah (Eds.), *Handbook of pediatric behavioral healthcare: An interdisciplinary collaborative approach* (pp. 113-124). Springer.
- Centers for Disease Control and Prevention. (2018). Asthma in children: Working together to get it under control. *Vital Signs*, 1-4. <https://www.cdc.gov/vitalsigns/pdf/2018-02-vitalsigns.pdf>
- Centers for Disease Control and Prevention. (2021). *Diabetes*. U.S. Department of Health and Human Services. <https://www.cdc.gov/healthyschools/npao/diabetes.htm>
- Chadwell, M. R., Roberts, A. M., & Daro, A. M. (2020). Ready to teach all children? Unpacking early childhood educators' feelings of preparedness for working with children with

- disabilities. *Early Education and Development*, 31(1), 100-112,
<http://doi.org/10.1080/10409289.2019.1621584>
- Chandler, R. (2014). Teachers' beliefs about poverty and the impact on learning disabilities identification in a poor, rural school district. *The Rural Educator*, 35(3), 31-39.
<http://doi.org/10.35608/ruraled.v35i3.347>
- Clay, D. L., Cortina, S., Harper, D. C., Cocco, K. M., & Drotar, D. (2004). Schoolteachers' experiences with childhood chronic illness. *Children's Health Care*, 33(3), 227-239.
http://doi.org/10.1207/s15326888chc3303_5
- Cuartas, J., & Rey-Guerra, C. (2019). Ecological predictors of perceiving scarcity in childhood. *Child Indicators Research*, 12(1), 99-113. <http://doi.org/10.1007/s12187-017-9503-6>
- Didsbury, M. S., Kim, S., Medway, M. M., Tong, A., McTaggart, S. J., Walker, A. M., White, S., Mackie, F. E., Kara, T., Craig, J. C., & Wong, G. (2016). *Journal of Paediatrics and Child Health*, 52, 1062-1069. <http://doi.org/10.1111/jpc.13407>
- Dunst, C. J. (2002). Family-centered practices: Birth through high school. *Journal of Special Education*, 36(3), 139-147. <https://doi.org/10.1177/00224669020360030401>
- Eastern North Carolina Health. (2020). *COVID-19 and Eastern North Carolina*.
<https://enchealth.org/>
- Evans, G. W. (2004). The environment of childhood poverty. *The American Psychologist*, 59(2), 77-92. <http://doi.org/10.1037/0003-066X.59.2.77>
- Gannoni, A. F., & Shute, R. H. (2010). Parental and child perspectives on adaptation to childhood chronic illness: A qualitative study. *Clinical Child Psychology and Psychiatry*, 15(1), 39-53. <http://doi.org/10.1177/1359104509338432>

- Gartin, B. C., & Murdick, N. L. (2009). Children with cancer: School related issues. *Physical Disabilities: Education and Related Services*, 27(2), 19-36.
<https://files.eric.ed.gov/fulltext/EJ844270.pdf>
- Gaskin, D. J., Thorpe, R. J. Jr., McGinty, E. E., Bower, K., Rohde, C., Young, J. H., LaVeist, T. A., & Dubay, L. (2014). Disparities in diabetes: The nexus of race, poverty, and place. *American Journal of Public Health* (1971), 104(11), 2147-2155.
<http://doi.org/10.2105/AJPH.2013.301420>
- Getch, Y. Q., & Neuharth-Pritchett, S. (2009). Teacher characteristics and knowledge of asthma. *Public Health Nursing*, 26(2), 124-133. <http://doi.org/10.1111/j.1525-1446.2009.00763.x>
- Gorski, P. C. (2012). Perceiving the problem of poverty and schooling: Deconstructing the class stereotypes that mis-shape education practice and policy. *Equity & Excellence in Education*, 45(2), 302-319. <http://doi.org/10.1080/10665684.2012.666934>
- Graff, K., Smith, C., Silveira, L., Jung, S., Curran-Hays, S., Jarjour, J., Carpenter, L., Pickard, K., Mattiucci, M., Fresia, J., McFarland, E. J., Dominguez, S. R., & Abuogi, L. (2021). Risk factors for severe COVID-10 in children. *The Pediatric Infectious Disease Journal*, 40(4), e137-e145. <http://doi.org/10.1097/INF.0000000000003043>
- Greenstein, T. N. & Davis, S. N. (2013). *Methods of family research* (3rd ed.). Sage Publications.
- Hair, N. L., Hanson, J. L., Wolfe, B. L., & Pollak, S. D. (2015). Association of child poverty, brain development, and academic achievement. *JAMA Pediatrics*, 169(9), 822-829.
<http://doi.org/10.1001/jamapediatrics.2015.1475>

- Hanno, E. C., Gardner, M., Jones, S. M., & Lesaux, N. K. (2022). An ecological perspective on early educator well-being at the start of the COVID-19 pandemic. *Early Childhood Research Quarterly*, 60, 214-225. <https://doi.org/10.1016/j.ecresq.2022.02.002>
- Harris, D. N., & Sass, T. R. (2011). Teacher training, teacher quality, and student achievement. *Journal of Public Economics*, 95(7), 798-812. <https://doi.org/10.1016/j.jpubeco.2010.11.009>
- Hill, N. J., & Hollis, M. (2012). Teacher time spent on student health issues and school nurse presence. *The Journal of School Nursing*, 28(3), 181-186.
<http://doi.org/10.1177/1059840511429684>
- Hinton, D., & Kirk, S. (2015). Teachers' perspectives of supporting pupils with long-term health conditions in mainstream schools: A narrative review of the literature. *Health & Social Care in the Community*, 23(2), 107-120. <http://doi.org/10.1111/hsc.12104>
- Hsu, J., Qin, X., Beavers, S. F., & Mirabelli, M. C. (2015). Asthma-related school absenteeism, morbidity, and modifiable factors. *American Journal of Preventive Medicine*, 51(1), 23-32.
<http://doi.org/10.1016/j.amepre.2015.12.012>
- Iruka, I. U., DeKraai, M., Walther, J., Sheridan, S. M., & Abdel-Monem, T. (2020). Examining how rural ecological contexts influence children's early learning opportunities. *Early Childhood Research Quarterly*, 52, 15-29. <http://doi.org/10.1016/j.ecresq.2019.09.005>
- Kaffenberger, C. J. (2006). School reentry for students with a chronic illness: A role for professional school counselors. *American School Counselor Association (ASCA)*, 9(3), 223-230. <https://doi.org/10.1177/2156759X0500900312>
- Kini, T., & Podolsky, A. (2016). *Does teaching experience increase teacher effectiveness? A review of the research*. Learning Policy Institute.

https://learningpolicyinstitute.org/sites/default/files/product-files/Teaching_Experience_Report_June_2016.pdf

Kompaniyets, L., Agathis, N. T., Nelson, J. M., Preston, L. E., Ko, J. Y., Belay, B., Pennington, A. F., Danielson, M. L., DeSisto, C. L., Chevinsky, J. R., Schieber, L. Z., Yusuf, H., Baggs, J., MacKenzie, W. R., Wong, K. K., Boehmer, T. K., Gundlapalli, A. V., & Goodman, A. B. (2021). Underlying medical conditions associated with severe COVID-19 illness among children. *JAMA Network Open*, 4(6), 1-14.

<http://doi.org/10.1001/jamanetworkopen.2021.11182>

Ladd, H. F. (2017). Do some groups of children benefit more than others from pre-kindergarten programs? In D. A. Phillips, M. W., Lipsey, K. A. Dodge, R. Haskins, D. Bassok, M. R. Burchinal, G. J. Duncan, M. Dynarski, K. A. Magnuson, & C. Weiland. (Eds.), *The current state of scientific knowledge on pre-kindergarten effects* (pp. 31-36). Brookings and Duke University. https://www.brookings.edu/wp-content/uploads/2017/04/duke_prekstudy_final_4-4-17_hires.pdf

https://www.brookings.edu/wp-content/uploads/2017/04/duke_prekstudy_final_4-4-17_hires.pdf

Lukemeyer, A., Meyers, M. K., & Smeeding, T. (2000). Expensive children in poor families: Out-of-pocket expenditures for the care of disabled and chronically ill children in welfare families. *Journal of Marriage and Family*, 62(2), 399-415. <http://doi.org/10.1111/j.1741-3737.2000.00399.x>

Lum, A., Wakefield, C. E., Donnan, B., Burns, M. A., Fardell, J. E., Jaffe, A., Kasparian, N. A., Kennedy, S. E., Leach, S. T., Lemberg, D. A., & Marshall, G. M. (2019). School students with chronic illness have unmet academic, social, and emotional school needs. *School Psychology*, 34(6), 627-636. <http://doi.org/10.1037/spq0000311>

- Lustig, D. C., & Strauser, D. R. (2007). Causal relationships between poverty and disability. *Rehabilitation Counseling Bulletin*, 50(4), 194-202.
<http://doi.org/10.1177/00343552070500040101>
- Mader, L., Roser, K., Baenziger, J., Tinner, E. M., Scheinemann, K., Kuehni, C. E., & Michel, G. (2017). Household income and risk-of-poverty of parents of long-term childhood cancer survivors. *Pediatric Blood & Cancer*, 64(8), 1-11. <http://doi.org/10.1002/pbc.26456>
- Mangiante, E. M. S. (2011). Teachers matter: Measures of teacher effectiveness in low-income minority schools. *Educational Assessment, Evaluation and Accountability*, 23(1), 41-63.
<http://doi.org/10.1007/s11092-010-9107-x>
- Marks, A., Wilson, V., & Crisp, J. (2013). The management of type 1 diabetes in primary school: Review of the literature. *Issues in Comprehensive Pediatric Nursing*, 36(1), 98-119.
<http://doi.org/10.3109/01460862.2013.782079>
- Maslow, G. R., Haydon, A., McRee, A., Ford, C. A., & Halpern, C. T. (2011). Growing up with a chronic illness: Social success, educational/vocational distress. *Journal of Adolescent Health*, 49(2), 206-212. <http://doi.org/10.1016/j.jadohealth.2010.12.001>
- McKown, C. (2005). Applying ecological theory to advance the science and practice of school-based prejudice reduction interventions. *Educational Psychologist*, 40(3), 177-189.
http://doi.org/10.1207/s15326985ep4003_4
- Miller, G. F., Coffield, E., Leroy, Z., & Wallin, R. (2016). Prevalence and costs of five chronic conditions in children. *The Journal of School Nursing*, 32(5), 357-364.
<http://doi.org/10.1177/1059840516641190>
- Mitchell, T. (2015). *North Carolina's greatest challenge: Widespread struggles remain a grave threat to economic growth and us all*. North Carolina Justice Center.

https://www.nccourts.gov/assets/inline-files/civil-justice-BTC-Report_North-Carolinas-Greatest-Challenge.pdf?_NcUGieZxDK3X60auVMnEb1v_QrMAo7D

Nabors, L. A., Little, S. G., Akin-Little, A., & Iobst, E. A. (2008). Teacher knowledge of and confidence in meeting the needs of children with chronic medical conditions: Pediatric psychology's contribution to education. *Psychology in the Schools, 45*(3), 217-226.

<http://doi.org/10.1002/pits.20292>

National Asthma Education and Prevention Program. (2014). *Managing asthma: A guide for schools*. National Institutes of Health.

https://www.nhlbi.nih.gov/files/docs/resources/lung/NACI_ManagingAsthma-508%20FINAL.pdf

National Cancer Institute. (2022, March 30). *COVID-19: What people with cancer should know*.

<https://www.cancer.gov/about-cancer/coronavirus/coronavirus-cancer-patient-information>

National Diabetes Education Program. (2016). *Helping the student with diabetes succeed: A guide for school personnel*. National Institutes of Health and the Centers for Disease Control and Prevention. [https://www.diabetes.org/sites/default/files/2020-02/NDEP-School-Guide-](https://www.diabetes.org/sites/default/files/2020-02/NDEP-School-Guide-Full-508.pdf)

[Full-508.pdf](https://www.diabetes.org/sites/default/files/2020-02/NDEP-School-Guide-Full-508.pdf)

Neuharth-Pritchett, S., & Getch, Y. Q. (2001). Asthma and the schoolteacher: The status of teacher preparedness and training. *The Journal of School Nursing, 17*(6), 323-328.

<http://doi.org/10.1177/10598405010170060701>

Nikiéma, B., Spencer, N., & Séguin, L. (2010). Poverty and chronic illness in early childhood: A comparison between the United Kingdom and Quebec. *Pediatrics, 125*(3), e499-e507.

<http://doi.org/10.1542/peds.2009-0701>

- North Carolina Department of Commerce. (2021). *2022 North Carolina Development Tier Designations*. https://files.nc.gov/nccommerce/documents/Research-Publications/2022-Tiers-memo_asPublished_113021.pdf
- North Carolina Department of Health and Human Services. (n.d. -a). *Children and asthma in North Carolina* [Fact sheet].
<https://www.asthma.ncdhhs.gov/docs/factsheets/ChildrenAndAsthmaInNorthCarolina.pdf>
- North Carolina Department of Health and Human Services. (n.d. -b). *Early educator support (EES) unit*. <https://ncchildcare.ncdhhs.gov/Services/EESLPD>
- North Carolina Department of Health and Human Services. (n.d.-c). *North Carolina prekindergarten program*. <https://ncchildcare.ncdhhs.gov/Home/DCDEE-Sections/North-Carolina-Pre-Kindergarten-NC-Pre-K>
- Olson, A. L., Seidler, A. B., Goodman, D., Gaelic, S., & Nordgren, R. (2004). School professionals' perceptions about the impact of chronic illness in the classroom. *Archives of Pediatrics & Adolescent Medicine*, 158(1), 53-58. <http://doi.org/10.1001/archpedi.158.1.53>
- O'Neill Hayes, T., & Gillian, S. (2020). *Chronic disease in the United States - A worsening health and economic crisis*. American Action Forum.
<https://www.americanactionforum.org/research/chronic-disease-in-the-united-states-a-worsening-health-and-economic-crisis/>
- Onchwari, J. (2010). Early childhood inservice and preservice teachers' perceived levels of preparedness to handle stress in their students. *Early Childhood Education Journal*, 37, 391-400. <http://doi.org/10.1007/s10643-009-0361-9>
- Organization for Economic Cooperation and Development. (2017). *Teaching in focus #17: Do new teachers feel prepared for teaching?* <https://www.oecd->

ilibrary.org/docserver/980bf07d-en.pdf?expires=1648647385&id=id&accname=guest&checksum=E20F5EB0826A7BDDFC8341AC7D2A29EB

Papadatou, D., Metallinou, O., Hatzichristou, C., & Pavlidi, L. (2002). Children with a chronic and life-limiting condition: Teachers' perceptions and experiences regarding students' school integration. *Illness, Crisis, and Loss*, 10(2), 108-124.

<http://doi.org/10.1177/105413730201000202>

Peckham, V. C. (1993), Children with cancer in the classroom. *Teaching Exceptional Children*, 26(1), 27-32. <https://doi.org/10.1177/004005999302600108>

Peisner-Feinberg, E., Zadrozny, S., Kuhn, L., & Van Manen, K. (2019). *Effects of the North Carolina Pre-Kindergarten Program: Findings through Pre-K of a small-scale RCT study: 2017-2018 statewide evaluation executive summary*. The University of North Carolina, Frank Porter Graham Child Development Institute.

<https://files.eric.ed.gov/fulltext/ED598158.pdf>

Phillips, D. A., Lipsey, M. W., Dodge, K. A., Haskins, R., Bassok, D., Burchinal, M. R., Duncan, G. J., Dynarski, M., Magnuson, K. A., & Weiland, C. (2017). Puzzling it out: The current state of scientific knowledge one pre-kindergarten effects. In Phillips, D. A., Lipsey, M. W., Dodge, K. A., Haskins, R., Bassok, D., Burchinal, M. R., Duncan, G. J., Dynarski, M., Magnuson, K. A., & Weiland, C. (Eds.), *The current state of scientific knowledge one pre-kindergarten effects* (pp. 19-30). Brookings and Duke University.

https://www.brookings.edu/wp-content/uploads/2017/04/duke_prekstudy_final_4-4-17_hires.pdf

- Reznik, M., & Halterman, J. S. (2016). School asthma policies and teachers' confidence and attitudes about their role in asthma management. *Annals of Allergy, Asthma, & Immunology*, 116(5), 473-475. <http://doi.org/10.1016/j.anai.2016.03.005>
- Roberts, A. M., LoCasale-Crouch, J., Hamre, B. K., & Jamil, F. M. (2020). Preschool teachers' self-efficacy, burnout, and stress in online professional development: A mixed methods approach to understand change. *Journal of Early Childhood Teacher Education*, 41(3), 262-283, <http://doi.org/10.1080/10901027.2019.1638851>
- Runions, K. C., Vithiatharan, R., Hancock, K., Lin, A., Brennan-Jones, C. G., Gray, C., & Payne, D. (2020). Chronic health conditions, mental health and the school: A narrative review. *Health Education Journal*, 79(4), 471-483. <http://doi.org/10.1177/0017896919890898>
- Saegert, S., & Evans, G. W. (2003). Poverty, housing niches, and health in the United States. *Journal of Social Issues*, 59(3), 569-589. <https://doi.org/10.1111/1540-4560.00078>
- Sherman, A. (2020). *4 in 10 children live in a household struggling to afford basics*. Center on Budget and Policy Priorities. <https://www.cbpp.org/blog/4-in-10-children-live-in-a-household-struggling-to-afford-basics>
- Siminerio, L. M., Albanese-O'Neill, A., Chiang, J. L., Hathaway, K., Jackson, C. C., Weissberg-Benchell, J., Wright, J. L., Yatvin, A. L., Deeb, L. C. (2014). Care of young children with diabetes in the child care setting: A position statement of the American Diabetes Association. *Diabetes Care*, 37(10), 2834–2842. <https://doi.org/10.2337/dc14-1676>
- Sirota, A. F. (2012). *The legacy of hardship: Persistent poverty in North Carolina*. North Carolina Justice Center. <http://ncpolicywatch.com/wp-content/uploads/2012/01/BTC-Brief-Persistent-Poverty.pdf>

- Sorhagen, N. S. (2013). Early teacher expectations disproportionately affect poor children's high school performance. *Journal of Educational Psychology, 105*(2), 465-477.
<http://doi.org/10.1037/a0031754>
- Spencer, N., & Strazdins, L. (2015). Socioeconomic disadvantage and onset of childhood chronic disabling conditions: a cohort study. *Archives of Disease in Childhood, 100*(4), 317-322.
<http://doi.org/10.1136/archdischild-2013-305634>
- Speybroeck, S., Kuppens, S. P. E., Van Damme, J., Van Petegem, P., Lamote, C., Boonen, T., & de Bilde, J. (2012). The role of teachers' expectations in the association between children's SES and performance in kindergarten: A moderated mediation analysis. *PloS One, 7*(4), 1-8
<http://doi.org/10.1371/journal.pone.0034502>
- Stalls, J., Hegde, A. V., & Ballard, S. M. (2018). Understanding preservice teachers' perceived preparedness to work with chronically ill young children. *Journal of Early Childhood Teacher Education, 39*(2), 169-180. <http://doi.org/10.1080/10901027.2018.1457577>
- Steinberg, S., & Krumer-Nevo, M. (2020). Poverty-aware teacher education. *European Journal of Teacher Education, 1*-16. <http://doi.org/10.1080/02619768.2020.1827390>
- Swedberg, R. (2020). Exploratory research. In C. Elman, J. Gerring, & J. Mahoney (Eds.), *The production of knowledge: Enhancing progress in social science* (pp. 17-41). Cambridge University Press.
- Swigonski, N. L., James, B., Wynns, W., & Casavan, K. (2021). Physical, mental, and financial stress impacts of COVID-19 on early childhood educators. *Early Childhood Education Journal, 49*(5), 799-806. <https://doi.org/10.1007/s10643-021-01223-z>

Thomas-Richmond, J. M., & O'Quinn, M. C. (2018). How will they know you care? Advice for preservice teachers based on children's perceptions of caring and respect. *SRATE Journal*, 27(2), 51-59. <https://eric.ed.gov/?id=EJ1186034>

United States Census Bureau. (2020, September 15). *Income, poverty and health insurance coverage in the United States: 2019* [Press release].
<https://www.census.gov/newsroom/press-releases/2020/income-poverty.html>

United States Census Bureau. (2021a, September 14). *Income, poverty, and health insurance coverage in the United States: 2020* [Press release].
<https://www.census.gov/newsroom/press-releases/2021/income-poverty-health-insurance-coverage.html>

United States Census Bureau. (2021b). *Small area income and poverty estimates (SAIPE)* [Data Set]. U.S. Department of Commerce. https://www.census.gov/data-tools/demo/saipe/#!/?map_geoSelector=aa_s&s_state=37&s_year=2019

United States Census Bureau. (2022). *2016-2022 American Community Survey 5-year data release*. <https://www.census.gov/newsroom/press-kits/2021/acs-5-year.html>

Van Cleave, J., Gortmaker, S. L., & Perrin, J. M. (2010). Dynamics of obesity and chronic health conditions among children and youth. *JAMA: Journal of the American Medical Association*, 303, 623–630. <http://doi.org/10.1001/jama.2010.104>

Vandsburger, E., Duncan-Daston, R., Akerson, E., & Dillon, T. (2010). The effects of poverty simulation, an experiential learning modality, on students' understanding of life in poverty. *Journal of Teaching in Social Work*, 30(3), 300-316.
<http://doi.org/10.1080/08841233.2010.497129>

- Wagner, J., Heapy, A., James, A., & Abbott, G. (2006). Brief report: Glycemic control, quality of life, and school experiences among students with diabetes. *Journal of Pediatric Psychology, 31*(8), 764-769. <http://doi.org/10.1093/jpepsy/jsj082>
- Wong, G., Medway, M., Didsbury, M., Tong, A., Turner, R., Mackie, F., McTaggart, S., Walker, A., White, S., Howard, K., Kim, S., & Craig, J. C. (2014). Health and wealth in children and adolescents with chronic kidney disease (K-CAD study). *BMC Public Health, 14*(1), 307. <http://doi.org/10.1186/1471-2458-14-307>
- Woodruff, R. C., Campbell, A. P., Taylor, C. A., Chai, S. J., Kawasaki, B., Meek, J., Anderson, E. J., Weigel, A., Monroe, M. L., Reeg, L., Bye, E., Sosin, D. M., Muse, A., Bennett, N. M., Billing, L. M., Sutton, M., Talbot, K., McCaffrey, K., Pham, H.,...COVID-NET Surveillance Team. (2022). Risk factors for severe COVID-19 in children. *Pediatrics, 149*(1), 37-48. <https://doi.org/10.1542/peds.2021-053418>
- Ylitapio-Mantyla, O., Uusiautti, S., & Maatta, K. (2012). Critical viewpoint to early childhood education teachers' well-being at work. *International Journal of Human Sciences, 9*(1), 458–483. <https://www.j-humansciences.com/ojs/index.php/IJHS/article/view/2043>
- Yoshikawa, H., Wuermli, A. J., Britto, P. R., Dreyer, B., Leckman, J. F., Lye, S. J., Ponguta, L. A., Richter, L. M., & Stein, A. (2020). Effects of the global coronavirus disease-2019 pandemic on early childhood development: Short- and long-term risks and mitigating program and policy actions. *The Journal of Pediatrics, 223*, 189-193. <https://doi.org/10.1016/j.jpeds.2020.05.020>

APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
4N-64 Brody Medical Sciences Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office 252-744-2914 · Fax 252-744-
2284 · rede.ecu.edu/umcirb/

Notification of Exempt Certification

From: Social/Behavioral IRB
To: [Ashley Miller](#)
CC: [Archana Hegde](#)
Date: 1/11/2022
Re: [UMCIRB 21-002660](#)
Perceived Preparedness of NC Pre-K Teachers Working with Chronically Ill Low-Income Children

I am pleased to inform you that your research submission has been certified as exempt on 1/11/2022. This study is eligible for Exempt Certification under category # 2ab.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

Document	Description
Survey Consent Paragraph.doc(0.01)	Consent Forms
Thesis Proposal.docx(0.01)	Study Protocol or Grant Application
Thesis Survey(0.02)	Surveys and Questionnaires

For research studies where a waiver or alteration of HIPAA Authorization has been approved, the IRB states that each of the waiver criteria in 45 CFR 164.512(i)(1)(i)(A) and (2)(i) through (v) have been met. Additionally, the elements of PHI to be collected as described in items 1 and 2 of the Application for Waiver of Authorization have been determined to be the minimal necessary for the specified research.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

APPENDIX B: POVERTY RATES IN NORTH CAROLINA

Poverty and Tier Rankings (All Ages) for Top 20 Eastern North Carolina Counties

Rank	County Name	Percent in Poverty (All Ages)	NC Commerce Tier Rankings
102	Robeson County	31.5	1
101	Scotland County	28.5	1
99	Tyrrell County	25.4	1
98	Bertie County	24.2	1
97	Halifax County	23.8	1
96	Lenoir County	23.1	1
95	Hertford County	23.0	1
94	Columbus County	22.3	1
92	Northampton County	21.6	1
91	Wilson County	21.5	1
88	Washington County	21.3	1
87	Bladen County	21.2	1
86	Edgecombe County	21.0	1
85	Martin County	20.6	1
84	Greene County	20.2	1
82	Hyde County	19.2	1
81	Pitt County	19.2	2
79	Jones County	18.8	1
78	Wayne County	18.6	1
77	Chowan County	18.5	1

Poverty and Tier Rankings (Under Age 18) for Top 22 Eastern North Carolina Counties

Rank	County Name	Percent in Poverty (Under 18)	NC Commerce Tier Rankings
102	Robeson County	48.1	1
101	Scotland County	46.3	1
99	Halifax County	37.5	1
98	Northampton County	37.2	1
97	Lenoir County	37.1	1
96	Washington County	36.4	1
95	Tyrrell County	34.9	1
94	Martin County	33.5	1
93	Edgecombe County	33.3	1
91	Columbus County	32.5	1
90	Bertie County	32.4	1
89	Wilson County	32.2	1
88	Jones County	31.8	1
83	Greene County	30.4	1

82	Wayne County	30.2	1
81	Bladen County	29.9	1
80	Beaufort County	29.5	2
78	Duplin County	28.9	1
77	Chowan County	28.5	1
76	Pamlico County	28.4	2
75	Hertford County	28.3	1
74	Hyde County	28.1	1

Note. Based on data from the 2019 U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE) Program and from the 2022 North Carolina Department of Commerce County Distress Rankings (Tiers)

APPENDIX C: SURVEY

I) Demographic

Please answer the following question about YOU:

1. Personal Characteristics

What is your gender?

- I) Male
- II) Female
- III) Non-binary / third gender
- IV) Prefer not to say

Race/Ethnicity

- I) White/Caucasian
- II) Black/African
- III) Hispanic/Latino(a)
- IV) Asian
- V) Pacific Islander
- VI) Native American
- VII) Biracial
- VIII) Other, Please specify

What is your age? _____

What is your length of residence in North Carolina? _____

2. Education Level: (please check one)

- ___ 4 yr. EC/CD degree
- ___ 4 yr. Education degree
- ___ 4 yr. degree in related field Specify _____
- ___ 4 yr. degree in other field. Specify _____
- ___ Some graduate coursework
- ___ Graduate degree

From what institution was this degree received _____

3. Licensure: (please check one)

- ___ Birth to Kindergarten
- ___ B-K Add-on
- ___ Pre-K Add-on
- ___ Elementary
- ___ Special Education
- ___ CDA
- ___ Other; Specify: _____
- ___ No licensure

4. What is your current license status with EES?

- Residency license
- Initial (SPI)
- Continuing (SPII)
- Lateral Entry

5. Experience:

Number of years of experience in the education field _____

Number of years of experience as a licensed teacher _____

Number of years teaching NC Pre-K _____

Number of years at this particular center _____

Number of years working in programs that serve low-income families/communities _____

Do you have any prior experience working with children with chronic illness?

- Yes
- No

Do you have any prior experience working with children with **asthma**?

- Yes
- No

Do you have any prior experience working with children with **cancer**?

- Yes
- No

Do you have any prior experience working with children with **diabetes**?

- Yes
- No

Do you have any prior experience working with children with chronic illness that are from low-income families?

- Yes
- No

5. Classroom Information (Classroom Teaching and Makeup):

Number of Children in class _____

Number of Boys _____

Number of Girls _____

Number of students with IEPs _____

Number of students WHO MIGHT NEED IEPs _____

Number of students with a known chronic illness _____

Number of students with a medical action plan _____

Racial Makeup of the Class (enter number in each category)

____ White/Caucasian

____ Black/African

- ___ Hispanic/Latino(a)
- ___ Asian
- ___ Pacific Islander
- ___ Native American
- ___ Biracial
- ___ Unknown

Number of children whose primary language is not English (English Language Learner/ELL)

Primary Languages of these students

Chronic illnesses are defined as “physical, emotional, or mental conditions” which interfere with school attendance or schoolwork and require “frequent attention or treatment” from a healthcare professional.

Examples of chronic illnesses include asthma, diabetes, cancer, sickle cell anemia, obesity, cystic fibrosis, heart disease, epilepsy, eczema and HIV/AIDS.

II) General Chronic Conditions

Please rate the following on a scale of 1 to 5, with 1 meaning “strongly disagree”, 2 meaning “disagree”, 3 meaning “neutral”, 4 meaning “agree”, and 5 meaning “strongly agree”

1. I feel confident in my knowledge of chronic childhood illnesses.
2. I feel prepared to work with young children who have chronic illnesses.
3. If an emergency occurred with a chronically ill child in my classroom, I feel prepared to handle the situation.
4. I feel the *resources (tangible aid)* I currently have within my school will enable me to care for chronically ill children.
5. I feel the *support (intangible aid)* I currently have within my school will enable me to care for chronically ill children.
6. I feel that the education I have received has provided me with the skills needed to work with children with chronic illnesses.
7. I believe I have had opportunity to reflect on my personal values and beliefs regarding my attitude towards chronic illnesses.
8. I am confident in my capacity to care for a child with a chronic illness in my classroom.
9. I feel comfortable communicating with the parents/guardians of a child with a chronic illness regarding their condition and needs.

III) Asthma

Please rate your level of perceived knowledge and preparedness to work with children with **asthma**. Answer each question on a scale of 1 to 5, with 1 meaning “strongly disagree”, 2 meaning “disagree”, 3 meaning “neutral”, 4 meaning “agree”, and 5 meaning “strongly agree”

1. I feel knowledgeable and competent in my understanding of childhood asthma.

2. I feel prepared to care for children with asthma in my classroom.
3. I feel knowledgeable regarding the existence and purpose of Asthma Action Plans.
4. I feel prepared to utilize a child's Asthma Action Plan within the classroom.
5. I feel confident in my ability to recognize the early warning signs of an asthma attack/episode.
6. I feel prepared to minimize a student's contact with their asthmatic triggers (e.g. adjusting an activity)
7. I feel comfortable assisting a student with their inhaler/spacer or know who in the school is designated to assist with this process.
8. I feel comfortable discussing a child's asthma condition with their classmates in a developmentally appropriate manner.
9. I feel comfortable communicating with the parents/guardians of a child with asthma regarding their condition and needs.

IV) Cancer

Please rate your level of perceived knowledge and preparedness to work with children with **cancer**. Answer each question on a scale of 1 to 5, with 1 meaning "strongly disagree", 2 meaning "disagree", 3 meaning "neutral", 4 meaning "agree", and 5 meaning "strongly agree"

1. I feel knowledgeable and competent in my understanding of childhood cancer.
2. I feel prepared to care for children with cancer in my classroom.
3. I feel knowledgeable about the symptoms related to childhood cancer that may interfere with school performance and day-to-day functioning.
4. I feel comfortable supporting a child in the classroom who's undergoing chemotherapy and/or radiation.
5. I feel prepared to work with parents regarding absenteeism that may be necessary due to cancer treatment.
6. I feel prepared to implement creative and inclusive activities for absent students with cancer.
7. I feel knowledgeable about the increased risk that infections have on immunocompromised children.
8. I feel comfortable discussing a child's cancer diagnosis with their classmates in a developmentally appropriate manner.
9. I feel comfortable communicating with the parents/guardians of a child with cancer regarding their condition and needs.

V) Diabetes

Please rate your level of perceived knowledge and preparedness to work with children with **diabetes**. Answer each question on a scale of 1 to 5, with 1 meaning "strongly disagree", 2 meaning "disagree", 3 meaning "neutral", 4 meaning "agree", and 5 meaning "strongly agree"

1. I feel knowledgeable and competent in my understanding of childhood diabetes.
2. I feel prepared to care for children with diabetes in my classroom.
3. I feel knowledgeable regarding the existence and purpose of Diabetes Action Plans.
4. I feel prepared to utilize a child's Diabetes Action Plan within the classroom.

5. I feel confident in my ability to recognize high and low blood sugar levels in a student with diabetes.
6. I feel knowledgeable about the dietary needs of children with diabetes.
7. I feel knowledgeable about who's role it is to monitor a student's blood glucose levels within my school.
8. I feel comfortable discussing a child's diabetes condition with their classmates in a developmentally appropriate manner.
9. I feel comfortable communicating with the parents/guardians of a child with diabetes regarding their condition and needs.

VI) Low-Income/Poverty

Please rate your level of perceived knowledge and preparedness to work with children from **low-income families/communities**. Answer each question on a scale of 1 to 5, with 1 meaning "strongly disagree", 2 meaning "disagree", 3 meaning "neutral", 4 meaning "agree", and 5 meaning "strongly agree"

1. I feel knowledgeable and competent in my understanding of the role poverty plays in children's development.
2. I feel prepared to care for and/or support children from low-income families/communities.
3. I feel confident in my ability to recognize how poverty-related factors can undermine a student's school performance.
4. I feel comfortable reaching out to and interacting with the parent(s)/guardian(s) of a child from a low-income community.
5. I feel knowledgeable about how to teach low-income students social-emotional learning strategies.
6. I feel knowledgeable about the role poverty plays in the development or worsening of childhood chronic conditions.

VII) Support and Resources

Please read and answer the following questions.

1. Would you be willing to reach out for help/resources (within the school, community, and state) regarding caring for a child in your classroom with a chronic illness? If so, what resources would you utilize? What would contribute to your willingness or unwillingness to reach out for help?
2. Would you be willing to reach out for help/resources (within the school, community, and state) regarding caring for children from low-income families/communities? If so, what resources would you utilize? What would contribute to your willingness or unwillingness to reach out for help?
3. Do you think the preservice education you received has made you prepared to care for chronically ill and/or low-income children? Please explain.
4. Do you think the ongoing professional education you have received as an in-service teacher prepared you to care for chronically ill and/or low-income children? Please explain
5. Does your program provide specific support/training when a child with a chronic illness is placed in your classroom? If so, what resources have they provided?

6. What measures should be taken or resources provided to improve your comfort with and preparedness to care for chronically ill and/or low-income children in the classroom?

We thank you for your time spent taking this survey. Your response has been recorded.

If you would like to enter for the \$10 electronic gift card, please follow this link to enter your information [link will be inserted after creation of the separate Qualtrics survey]

Thank you for completing the survey! You may now enter the following information to be entered for the drawing of a \$10 electronic gift card.

Q1: First and Last Name _____

Q2: Email Address _____

APPENDIX D: DATA ANALYSIS SUMMARY TABLE

Plan of Analysis

Research Question	Survey Questions Analyzed	Statistical Tests
1. How prepared and knowledgeable do NC Pre-K teachers feel to support children with chronic illness in general?	SII Q1-Q9 and composite score	<i>Descriptive statistics:</i> Mean and standard deviation
2. How prepared and knowledgeable do NC Pre-K teachers feel to support children with asthma, cancer, and diabetes within their classrooms?	SIII Q1-Q9 and composite score SIV Q1-Q9 and composite score SV Q1-Q9 and composite score	<i>Descriptive statistics:</i> Mean and standard deviation
3. How prepared and knowledgeable do NC Pre-K teachers feel to support children from low-income communities within their classrooms?	SVI Q1-Q6 and composite score	<i>Descriptive statistics:</i> Mean and standard deviation
4. Overall, do teachers' preparedness and knowledge levels differ across their general understanding of chronic illnesses and working with children from low-income families?	SII Q1 & Q2, SVI Q1 & Q2	<i>Inferential statistic:</i> paired-samples t-test
5. Overall, do teachers' preparedness and knowledge levels differ across three specific chronic conditions (asthma, cancer, and diabetes)?	SIII, SIV, SV composite scores and SIII Q1, SIV Q1, SV Q1	<i>Inferential statistic:</i> repeated measures ANOVA
6. Do teachers' personal characteristics, such as age or race, correlate with or relate to their preparedness score in general and specific to other chronic illnesses or to poverty?	SI Q1c and Q1b, SII, SIII, SIV, SV, SVI, and composite scores	<i>Inferential statistics:</i> Pearson's correlation and ANOVA
7. Do teachers' years of experience in education correlate with their preparedness scores in general and with specific chronic illnesses?	S1 Q5, SII, SIII, SIV, SV, SVI, and composite scores	<i>Inferential statistic:</i> Pearson's correlation
8. What supports and resources do NC Pre-K teachers currently have and need to better work with children with chronic conditions from low-income communities?	SVII Q1-Q6	Thematic content analysis

APPENDIX E: QUALITATIVE RESULTS THEMES

Three major themes of teachers' preparedness and support needs

Themes	Examples
Varying Sources of Support <i>Subtheme 1: Tangible vs. Intangible</i>	“I would look for resources online, books, libraries, and webinars” (<i>tangible</i>) “I would look into...parental insight, coworkers personal experience, service providers for that child, or Professional Learning Communities for aid.” (<i>intangible</i>)
<i>Subtheme 2: Familial, Administrative, and Community</i>	“Yes, I would be willing to reach out for help beginning with our local Smart Start of [redacted] County as well as our local health department.” “I would speak with my administration, speak with the family, and medical professionals if needed.”
Perceived Training Effectiveness <i>Subtheme 1: Reliance on Experiential Learning</i>	“I do not feel much of my knowledge about chronic conditions and the effects of poverty was taught inside a college classroom.” “Yes, some classes that I have taken were very informative in teaching how to deal with chronic illness.” “Some preservice education can [prepare you] but it's [the] hands on experience that really helps you.”
Recommendations for Professional Development Opportunities	“Maybe a medical professional coming to the school and giving in person training.” “I would love to have a resource guide that could guide me if I had a student with chronic illness.” “Virtual pd opportunities, electronic or print resources on different conditions, list of trusted/informative website or people to contact if questions arise.”

