University of Cincinnati

Date: 2/15/2024

I, Jacquana L Smith, hereby submit this original work as part of the requirements for the degree of Master of Arts in Psychology.

It is entitled:

Complex Roles of Social Determinants of Health: Parental and Caregiver Perceptions of Child Health and Socio-Environmental Factors

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UNIVERSITY OF Cincinnati

48064

Complex Roles of Social Determinants of Health: Parental and Caregiver Perceptions of Child Health and Socio-Environmental Factors

A thesis submitted to the
Graduate College
of the University of Cincinnati
in partial fulfillment of the
requirements for the degree of

Master of Arts

in the Department of Psychology
of the College of Arts and Sciences
by

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August 2019
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August 2015

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Abstract

Parent/caregiver perceptions of child mental and physical health are influenced by cultural background and personal experience, however, social determinants of health (SDOH), which encompass non-biological factors affecting health outcomes, also work to inherently shape and mold these perceptions as well (World Health Organization, 2020a; Centers for Disease Control and Prevention, 2018). Social determinants have a crucial role in shaping access to essential resources, offering valuable insight into possibly predicting parent/caregiver perceptions, and effectively reflecting the internal, external, and unbalanced distribution of resources and support available to families (World Health Organization, 2020a; 2020b; Idler & Benyamini, 1997; Bzostek & Beck, 2011). This study aims to explore the interplay and intricate associations between parents/caregivers' perceptions of children's mental and physical health and socio-environmental contextual factors, providing a nuanced understanding of the dynamics between SDOH and parental beliefs. Toward this objective, a secondary analysis of data from a Community Health Needs Assessment (CHNA), including parent/caregivers (N=729), collected by Cincinnati Children's Hospital Medical Center (CCHMC) was performed. Using quantitative analysis methods, three key statistical analyses are centered to identify associations, with the findings underscoring the role of SDOH in shaping parental perceptions of child health. The findings demonstrated a statistically significant, small negative correlation between parent/caregiver perceptions of child mental health and the cumulative indicator of social determinants of health need (CISDH) ($r^2(760) = -.097$, $p < .007$). Similarly, a small negative correlation was observed between parent/caregiver perceptions of child physical health and CISDH (r^2 (764) = -.121, $p < .001$) using Spearman's rank-order correlation analysis. A multinomial logistic regression revealed a statistically significant model, with predicted probabilities illustrating the perception of child physical and mental health, vary based on the levels of CISDH. Furthermore, concerns related to poverty or meeting basic needs, safety and violence, access to healthy foods, and racism or discrimination were examined. Significant variations were observed across different geographic areas, income groups, and Medicaid participation status, utilizing chi-square tests. Findings revealed that various and multiple socio-environmental factors intertwine and

significantly influence parental/caregiver perceptions of child health. The analysis highlighted nuanced patterns, demonstrating the complex interplay of parents/caregivers' perceptions of their child's mental health concerning physical health and SDOH.

Keywords: parent perceptions, social determinants of health, health equity, child mental health, child physical health

Acknowledgements

There are so many loved ones and supporters who I am grateful for, as this would not have been possible without them. I would like to express my deepest gratitude to my incredible husband and five children*, whose unwavering support and encouragement have been my constant source of strength throughout my academic journey. Their endless love and patience have been the foundation of my resilience and determination. My children have been a great source of inspiration and motivation for my research and never fail to show me what it looks like to be brave. To my mother and father, family, friends, and coach Mia, who provide constant support, late night calls, constant encouragement, and pride in my achievements—I am profoundly thankful.

I am especially indebted to my chair, Dr. Monica Mitchell, whose guidance, expertise, and mentorship have been invaluable throughout this process. Her patience, insight, and rigorous academic standards have significantly shaped my work and my growth as a scholar. Her encouragement to pursue excellence while navigating the challenges of research has been a guiding light. I am forever grateful for her help in baking this cake!

To my thesis committee members, Dr. Anjali Dutt, and Dr. Cathy Stough, I extend my sincere thanks for their time, feedback, and expertise, as it has greatly contributed to the depth and quality of this work. This journey would have been much harder without the community of friends, colleagues, and mentors who have provided support, advice, and laughter along the way. I extend my gratitude to Psychology Department and CORA Faculty and students, with special recognition of Autumn, Stephanie, and Emmanuel, your camaraderie, aid, and encouragement have made all the difference.

Finally, I would like to acknowledge the support and partnership provided by the UC Institute for Policy Research and Cincinnati Children's Hospital Medical Center staff.

To all of you, I am eternally grateful. Thank you.

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Complex Roles of Social Determinants of Health: Parental and Caregiver Perceptions of Child Health and Socio-Environmental Factors

A parent/caregiver's perception of their child's mental and physical health and community are influenced by a range of social determinants of health (SDOH), by way of income, social status, education, as well as contextual factors such as the social and geographic community factors. These factors drawing influence from economics, social policies, and politics (Centers for Disease Control and Prevention, 2020; 2018; World Health Organization, 2020a). If community resources are inequitable, harm is exacerbated across a categorical axis for parents/caregivers and their children (Crenshaw, 1989; Powers et al., 2020). While inequities can cause unique disparities or even operate independently to exacerbate avoidable differences in health, little is known about the impact of these inequitable factors that compound and become intertwined.

The collective perception and characteristics of parent/caregivers (e.g., ability, age, income, education) are an evident influence on the proximity to, access to, and utilization of social and health resources, offering valuable insight into how they perceive their child's wellbeing (Cafferata & Kasper, 1985). Understanding the range of factors that impact parents/caregivers' perception of their children's health is critically important for children's well-being and the community's development, as it helps to uncover barriers in different environments (Bradley & Corwyn, 2002; Yaeger et al., 2022). Numerous studies have investigated strategies and approaches to understanding SDOH within a variety of different contexts–global, local, rural, urban, income, and among diverse race/ethnic populations (Yaeger et al., 2022; Perrin et al., 2020). However, these studies have traditionally focused on or insist on only using collective population data (e.g., state, county, and national census data) that fails to differentiate the specific factors or value the direct reports from individuals expressing their unique experience of their local conditions and needs.

Guided by previous research, this study explores how complex and interconnected pathways of influence (i.e., societal, health, and psychological) intersect with social needs, structural disadvantage, and parent/caregiver perceptions of child mental and physical health (Johnson et al., 2022; Ompad et al.,

2007; Priest et al., 2013; Protono et al., 2017; Spencer, 2018; Viner et al., 2012). While SDOH factors influence various and wide-ranging pathways that collectively shape parental beliefs and concerns, a notable gap exists in that current research has yet to explore the intricate associations between parent/caregivers' perceptions of their children's mental and physical health and the contextual factors influencing health. Addressing this gap provides a nuanced depiction of the dynamics between the presence of need associated with numerous SDOH and parental beliefs regarding child health (Short & Mollborn, 2015). Therefore, the purpose of this study is to gain in-depth insight on a broad range of SDOH factors, and more importantly, how they interact to influence the parent/caregiver's perception of their child's mental and physical health. The present study examines data obtained from a community health needs assessment (CHNA) and is framed within the ecosocial theoretical approach (Krieger, 2021) and social determinants of health framework. The primary aim is to investigate the connections between the presence of multiple social need factors and the perceptions of child health among parents and caregivers. The research underscores the critical importance of casual and spontaneous relationships and their interplay. Analysis of data will focus on the potential influence of multiple SDOH factors on how parent/caregivers perceive the mental and physical health of their children. Additionally, it will examine parent/caregivers' reports regarding needs and concerns related to social, economic, and environmental factors within their communities.

Social Determinants of Health

SDOH are the conditions in the environment, which encompass the social and environmental factors (non-biological) that contribute to well-being and health outcomes and risk (World Health Organization, 2020a). Social determinants tend to impact and interact with health much earlier in the life span than hereditary determinants (Krieger, 2005; 2021; Delaney & Smith, 2012; Petteway et al., 2019; Viner et al., 2012). Social factors–including external sources–occurring in childhood, affect the future adult's physical and mental health, socio-emotional wellness, and cognitive capability (Mitchell & Notterman, 2016). *Healthy People 2030*–a plan released every ten years and developed by the Office of Disease Prevention and Health promotion–provides a framework for understanding the social

determinants of health through five domains: economic stability (e.g., employment, income, housing instability, and food security), education access and quality (e.g., access to higher levels of education), healthcare (e.g., access to healthcare, primary care, and health insurance), neighborhood and built environment (e.g., neighborhood safety risk, environmental conditions, access to resources), and social and community context (e.g., social support and trust, incarceration, and discrimination) (Healthy People, 2019; WHO, 2020a).

To engage with the SDOH framework, organizations such as the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) express the importance of addressing families and children's social needs–evaluating resources, accessibility, and critical steps required for action –when promoting community and population health and health equity (Hacker & Houry, 2022; WHO, 2020a). Health equity refers to the fair and just distribution of health and healthcare opportunities for children and their families regardless of their income, education, culture, or where they live (Bravemen & Gruskin, 2003; Office of Disease Prevention and Health Promotion, 2021). Efforts to increase health equity seek to provide specific provisions and support for community resource needs, considering variations between communities, which acknowledge diversity, and honor people's culture, attitudes, behaviors, and lived experiences (Office of Disease Prevention and Health Promotion, 2021; WHO, 2020b; Marmot et al., 2008). The increased attention on SDOH reveal multiple health inequities– avoidable differences in health outcomes– between individuals of varying social and economic backgrounds (Office of Disease Prevention and Health Promotion, 2021; Penman-Aguilar et al., 2016; Trent et al., 2019; WHO, 2020b). Inequities further lead to preventable differences in access, known as disparities (Penman-Aguilar et al., 2016; Haapanen & Christens, 2021). Such inconsistencies and disparities in opportunity between groups creates burden of disease, injury, or experiences of violence on vulnerable populations, depriving them of optimal health (CDC, 2020). Social determinants play a crucial role in shaping access to essential resources and health for families and children. Inequity within SDOH domains transform social differences into a social hierarchy, where those at the lower end of the spectrum have an increased likelihood of poorer health outcomes and reduced life expectancy (Singu et al., 2020).

Heightening awareness of inequities is critical, as they tend to have harsher consequences for those, such as parent/caregivers facing barriers, when experiencing them (Parker, 2010).

The Interplay of Multiple Determinants

A family's experience with multiple inequities direct attention to the exaggeration and accumulation of these needs, which are created by the interplay of social determinants, such as poverty, lack of quality education or healthcare, and exposure to environmental hazards (Johnson et al., 2022; Wray et al., 2021; Huxley & Thornicroft, 2023). Parents/caregivers experience complex, multiple social determinants and structural inequities, explained and illustrated in numerous studies. For instance, White and colleagues (2012) found geographic location influences neighborhood resources, which are associated with fluctuations in the way local governments direct spending and the availability and delivery of certain services. Moreover, Braveman and colleagues (2010) observed lower parent/caregiver education attainment was consistent with a socioeconomic gradient; however, higher levels of disparities were associated with lower education and lower income attainment, collectively. Furthermore, researchers have observed that parents/caregivers and children with a lower income are more likely to live in areas exposed to inadequate water, air quality, sanitation, nutrition, and housing conditions, increasing the risk for disease and earlier mortality (Victoria et al., 2003).

Over time and across generations, the accumulation of inequities and disparities lead to the escalation and intensification of unequal distribution of health outcomes and opportunities (Turney et al., 2013; Wray et al., 2021). While research on cumulative burden of SDOH and health is scarce, one study has investigated the relationship between multiple/cumulative SDOH needs and the self-reported perceptions of mental and physical health of college students. Johnson and colleagues (2022) examined how cumulative indicators of unmet SDOH needs (e.g., food insecurity, financial stress, and housing insecurity) are related to mental and physical health and found significant differences in their self-reported ratings. The findings of this study uncovered a connection between needs related to SDOH among college students and how they perceive their general health and depression symptomology. Additionally, individuals experiencing moderate to severe depression symptoms are more prone to

reporting poorer health, multiple indicators of SDOH need, and marginalized identity (Johnson et al., 2022). This study included wide measures to capture perceptions of health and provides guidance for future research methods of cumulative SDOH indicators of need, despite using a homogenous sample (Johnson et al., 2022). Subsequent research endeavors will enhance our understanding of the interconnected pathways leading to the concurrent presence of multiple SDOH factors. Providing evidence for content-specific initiative opportunities, catering to the specific needs of the community through their lens and understanding of their current environment, is necessary (Kimani-Murage et al., 2015). It is therefore important to investigate how parents/caregivers perceive their child's health status and its associations with various SDOH needs. While research acknowledges the intricate connections between SDOH factors (e.g., environmental conditions, educational access, and health), researchers still have the opportunity to investigate how the impacts of SDOH reverberate through parents/caregivers and their children, who in turn, depend on a functioning society to meet their basic needs.

The Importance of Parent/Caregiver Perceptions

Parental/caregiver perceptions can vary widely based on various factors such as cultural background, personal experiences, education level, and access to information (Ademo & Brett, 2014; Schmeer, 2012; Protano et al., 2017). These perceptions and beliefs shape both their decisions about and interactions with their children's health and healthcare. While it is difficult to generalize, when assessing their child's mental and physical health, some common aspects that parents/caregivers often consider are social support, physical neighborhood conditions, access and barriers to care, racism and discrimination, and trust in healthcare professionals (Fanta et al. 2021; Hansen et al., 2021; Riley et al., 1993; Torquati et al., 2011). Previous research has demonstrated the link between environmental and social contexts and parent/caregiver perceptions of child health. For example, when parents/caregivers' express concerns and worry about SDOH factors, they also perceived their child's health to be worse, while parents/caregivers with positive perceptions had improved child health (Cronin & Gran, 2018). Furthermore, there is evidence of how parent/caregiver perception may work downstream to impact their child. For example, parental/caregiver concerns and perceptions of food insecurity may be a contributing factor to their

child's mental health. Research demonstrates that when parents/caregivers are concerned about household food insecurity, children express emotional (e.g., worry, sadness, anger) and physical (e.g., hunger, discomfort, tiredness) awareness (Fram et al., 2015). Additionally, a parent/caregiver's experience with SDOH factors can further influence how children experience inequitable social and health outcomes. Previous research found that a "double burden" was created for the children of parents/caregivers who faced multiple social barriers such as obtaining access to healthcare and optimal outcomes for their children with a disability, who are also members of a racial/ethnic minority group (who are more likely to face racism and/or discrimination) (Akobirshoev et al., 2020; Fanta et al., 2021). A more recent study presented evidence of "double burden" for parents/caregivers and children's lack of access to healthy food choices, inadequate access to health care services, and other social determinants because of poverty, found to be associated with child hypertension and coronary heart disease (Kimani-Murage et al., 2015). Moreover, parents/caregivers and their children, across varied racial/ethnic minority groups, faced significant variances in vulnerability depending on geographic location. Despite metropolitan areas having numerous world-class hospitals and care facilities, the children in metropolitan areas faced increased risk of multiple exposures compared to other geographic locations (Morello-Frosch & Shenassa, 2006), further demonstrating the impact of multiple burdens on families.

Approach and Theoretical Lens to Understanding Parent/Caregiver Perspectives

The ecosocial theory provides a lens to view the intersecting pathways of how parents/caregivers experience inequities, discrimination, and how these external factors can contribute to health perceptions. As described by Krieger (2021), the ecosocial theoretical approach helps to explain the association between social factors and health and highlights the critical importance of the casual relationships and frameworks, such as the social determinants of health, to reveal these answers (Krieger, 2021; 2012; Petteway et al., 2019). The SDOH framework and ecosocial perspective recognizes inequities in health are not merely caused by differences in behavior or biological factors such as genes, but also other spheres of influence such as access to education, employment, health care, living, and working conditions, social and community networks, and housing (Krieger 2021; Short & Mollborn, 2015; World

Health Organization, 2020b). At the core of understanding social determinants and health policy is recognition that health and illness is largely determined by subjective and dynamic interpretations (Krieger, 2021). Implementing ecosocial theory into the current study provides for intentional inclusion of parent/caregiver perspectives of health, the community environment, and SDOH indicators to illuminate injustice and equity and further guide for allocation of resources, accountability, action, and change (Krieger, 2021). This approach considers the "spheres of influence" that construct parents/caregiver's options and their perceptions of their children's health and community (Krieger, 2021; 2012), uncovering its contribution to differences in parental/caregiver perceptions and health outcomes among children.

When parents/caregivers are asked to assess their child's health and community context, they are given a unique opportunity to express their beliefs, values and/or expectations, and provide complimentary data needed to wholistically understand child's health and related contextual factors (Bzostek & Beck, 2011; Idler & Benyamini, 1997; Schmeer, 2012). Utilizing the ecosocial theory and leveraging the fact that parents/caregivers are the expert of their own and their own child's personal experiences, tools such as Community Health Needs Assessments (CHNA) can be used to gather specific community data and facilitate our understanding of a community's needs, conditions, health, and the evaluation of the living environment and resources available to families (Escobedo et al., 2019; Franz et al., 2022; Handyside et al., 2021; Key at al., 2019; McMullin et al., 2010; Salinas-Miranda et al., 2015; Vaughn et al., 2018). Perspectives collected via CHNA and other self-rated measures are commonly used in social science research to investigate health and have been found to be reliable indicators of wellbeing, as well as effective in the unification and representation of functional ability, objective disease, and environmental factors (Hansen et al., 2021; Boardman, 2006; Idler & Benyamini, 1997; DeSalvo et al., 2006; Turney, 2011). Research using global self-rated measures of overall health has shown that these measures are strong and effective in their ability to predict health trajectories, even after controlling for a multitude of "objective medical ratings", due to their ability to reflect a more well-rounded perspective of internal and external health-related resources (Bzostek & Beck, 2011; Idler & Benyamini, 1997; Cronin & Gran, 2018). Understanding the complex and multiple points that shape the experiences of

parents/caregivers and their children, approached with an understanding of intersectionality, can aid in guiding further understanding. This involves recognizing the various influences of social and environmental factors applied to an individual or group, which interact and combine, creating interdependent systems of discrimination or privilege (Bauer, 2014; Crenshaw, 2013; Cho, Crenshaw, & McCall, 2013; Collective, 1977). Existing research has created a foundation for the current study to explore how SDOH factors operate, and the presence of need cumulates, to influence parent/caregiver perceptions of child health at the community level.

The Current Study

The present study is a secondary data analysis from a Community Health Needs Assessment (CHNA) lead by Cincinnati Children's Hospital Medical Center (CCHMC) to better understand parent/caregiver perceptions of child mental and physical health and social factors. The SDOH framework was used to examine the intersections and impacts of SDOH contextual factors (i.e., neighborhood and built environment, food security, Medicaid participation, and parent/caregiver education and parent/caregiver-rated child mental and physical health status) and increase understanding on how social determinants may accumulate and further influence parent/caregiver's perceptions. There was also an investigation of how trust and social, environmental, and community context, such as health-related issues vary within socio-demographic groups. The current study contributes to the body of knowledge on SDOH by presenting the factors most relevant to mental and physical health, while directly allowing for community voices to be heard. Moreover, the utilization of a CHNA encourages progress toward equitable and culturally sensitive initiatives and programing for the community (Moore de Peralta et al., 2020). Addressing the current three aims, provides timely information and further guidance to the numerous organizations operating to improve community health and environmental conditions.

Aim 1: SDOH and parent/caregiver perceptions of child health.

What are the relationships between the existence of SDOH need indicators and the parent/caregivers' perception of child's *physical* and *mental health*?

H1: The extent of parent/caregivers' experience multiple SDOH need indicators influences parent/caregivers' perceptions of child health.

H1a: An increase in SDOH need indicators leads to a decrease in parent/caregivers' perceptions of child *mental health.*

H1b: An increase in SDOH need indicators leads to a decrease in parent/caregivers' perception of child *physical health.*

Aim 2: Using SDOH to predict parent/caregiver perceptions.

What factors predict the likelihood of the parent/caregiver perceiving their child'*s mental health* to be poor/fair, good, very good, or excellent?

H2: The impact of multiple SDOH need indicators on parents/caregivers' perceptions of child *mental health* is influenced by their perceptions of child *physical health*.

Aim 3: Parent/caregiver perceptions of community and social-environmental context.

Does concern or lack of concern for social, economic, environmental, and health-related factors show variations among sociodemographic characteristics?

H3: The proportion of parent/caregiver concerns of health-related social, economic, or environmental factors (e.g., poverty or meeting basic needs, safety and violence, access to healthy foods, and racisms and discrimination) will exhibit variation across socio-demographic categories (e.g.-age, race, gender, household size).

Methods

The current study is a quantitative secondary analysis with an interdisciplinary lens, integrating concepts from psychology and public health to conduct a non-experimental, descriptive, cross-sectional study on CHNA data collected by CCHMC. The *2021 Child Health Survey* instrument was designed by CCHMC, with input from CCHMC's patients and families, community members, and key child health organizations. CCHMC applied a community-based research model to understand the need and disparities of children in Hamilton County, including the city of Cincinnati and surrounding suburbs. The CHNA collected prevalence data among children regarding their needs experienced and prioritized by the

community. The process of conducting a CHNA involved the review of existing reports or data and engagement with community members and stakeholders. Collectively with the community, data was gathered, analyzed, and used to construct a comprehensive depiction of the community's present status, such as strengths, concerns, and opportunities for improvement. To ensure a strong community-oriented construct, a review of written reports and available surveys from top pediatric institutions was conducted and feedback from the CHNA Advisory committee was obtained with a focus on community and public health. The CHNA survey was conducted over the telephone with a standardized questionnaire consisting of 34 questions (see, *Appendix A)*, taking approximately 15-30 minutes to complete. Participants (*n*=729), were randomly selected from parents and caregivers, aged 18 years or older, living in a household with children, living in the Greater Cincinnati Area, in accordance with CHNA protocol. The CCHMC Institutional Review Board (IRB) and the University of Cincinnati IRB approved the primary data collection and procedures.

Secondary Analysis of Existing Data

Utilizing the CHNA data collected by CCHMC, this study examines parental/caregiver perceptions of child *mental health*, child physical health, and SDOH factors. Parents/caregivers completed a questionnaire assessing child health, health-related issues, social, economic, or environmental factors (e.g., Safety or violence, lack of affordable housing, poverty or meeting basic needs, racism or discrimination, or access to healthy foods), trust, care experiences, and support for full potential (see *Appendix A* for full measure). Demographics previously demonstrated to be associated with social determinants of health and child mental and physical health (Healthy People, 2019; WHO, 2020), were collected of the parents/caregivers (e.g., gender, race, ethnicity, language, household size, insurance status, income, education) and child (e.g., age, race/ethnicity, gender, insurance status). For demographic details, refer to Table 1.

Measures

Child Physical Health and Mental Health. To assess the parent/caregiver's perception of the child's health, parents/caregivers were asked to separately report the overall (*physical)* health and the

mental and emotional health of their child using a 5-point Likert scale ranging from poor to excellent. Reponses were recoded, assigning a score of 1 through 4, with the responding categories of: poor/fair (1), good (2), very good (3), or excellent (4). Due to insufficient sample size, the 'poor' category was merged with 'fair' to ensure sufficient sample size for meaningful analysis.

Social Determinants of Health Indicators. There is a precedent for examining the influence of multiple SDOH indicators (Johnson et al., 2022; Ozieh et al., 2021), therefore consistent with prior research, the count of SDOH indicators will be referred to as "cumulative indicators of SDOH need (CISDH)," (Johnson et al., 2022). The use of a *CISDH* variable accounts for multiple SDOH experiences by each family and previously demonstrated to be associated with SDOH (Healthy People, 2019; Johnson et al., 2022; Ozieh et al., 2021). For the CISDH, this study used four items from the CHNA, that range over the five SDOH domains (e.g.-economic stability, education access, healthcare, and neighborhood and built environment) (Healthy People, 2019). 1) Food insecurity-"Within the past 12 months, we worried whether our food would run out before we got money to buy more." Drawing from a Likert scale of often true, sometimes true, never true, don't know/refuse, recoded into two categories, yes=1 (e.g., often true, sometimes true), and no=2 (e.g., never true). 2) Healthcare/Income- "Is [child] covered by Medicaid, the state of Ohio government health care program?" This was collected with a binary response (yes=1, no=2). 3) Neighborhood and built environment captured in two area categories: City of Cincinnati (1) and Hamilton County suburbs (2). 4) Education Access- Parental education attainment "What is the last grade or class you completed in school?" Responses were grouped to reflect four categories: High school diploma or less (1), some college or technical/vocational school (2), four-year degree (3), and some graduate or obtained graduate/professional degree (4). The CISDH captures the multiple SDOH exposures and needs present for each participant, using a score ranging from 0 to 4.

Data Analysis

Utilizing SPSS (IBM SPSS STATISTICS 29) the data was cleaned, recoded, and descriptive and frequency statistics were evaluated. To ensure accuracy, there was an assessment of the quality of the data and any inconsistencies and missing values were addressed.

Aim 1: SDOH and parent/caregiver perceptions of child health.

To initiate the examination of the relationship between SDOH need and parent/caregivers' perceptions of child health, Aim 1 used a Spearman's rank-order correlation analysis to assess the associations between parent/caregiver-reported child health (e.g., *physical* and *mental health*) and CISDH.

Aim 2: Using SDOH to predict parent/caregiver perceptions.

For Aim 2, a multinomial logistic regression was conducted to investigate how both child *physical health* and CISDH influence the likelihood of a parent/caregiver perceiving a child as having different levels of *mental health*. The analysis focused on assessing the independent effects of child *physical health* and CISDH on mental health perceptions while controlling for relevant variables, including child age, income, race, gender, ethnicity, and household size. To evaluate the significance of the independent variables and understand the impact of CISDH and parent/caregiver perceptions of child *physical health* on child *mental health*, the overall model goodness-of-fit and interpreted regression coefficients, odds ratios, standard errors, confidence intervals, figures, and p-values were examined. This analysis allowed the exploration of the unique contributions of SDOH and identified any interactions or nonlinear relationships that exist.

Aim 3: Parent/caregiver perceptions of community and social-environmental context.

To examine Aim 3, a chi-square test determined the statistical significance of the relationships between the social and health-related issue, trust, and socio-demographics (e.g., income, gender, geography, Medicaid, child age). This test assessed whether the category proportions significantly differed from another. All results were used to understand the complexity of parent/caregiver experiences and report community voice and concerns.

Weighting

The participants in the CHNA are parents and caregivers who possess in-depth and intimate knowledge of their child's health and the community they live in. Therefore, in line with the primary data analysis, the data are weighted to accurately represent the demographics of the Greater Cincinnati

population. In the CHNA dataset, each individual record is assigned a unique sample weight to ensure that the findings are representative of the population in Cincinnati and Hamilton County.

Results

The current study aimed to answer three research questions, with the overall purpose of understanding the associations and relationships between the social determinants of health and parent/caregiver perceptions of child health. The results are presented by each aim below.

Aim 1

Multiple indicators and parent/caregiver perceptions of child mental and physical health.

To examine CISDH and parent/caregiver perceptions of child health in Aim 1, a Spearman's rank-order correlation was conducted to assess the relationship between parent/caregiver perceptions of child *physical health* and *mental health* and CISDH. Supporting hypotheses 1a and 1b, there was a statistically significant, small negative correlation between parent/caregiver perceptions of child *mental health* and the CISDH, r^2 (723) = -.097, p = .007; as well as small negative correlation between parent/caregiver perceptions of child *physical health* and the CISDH, r^2 (727) = -.121, p < .001. That is, as participants experience multiple adverse SDOH (count 0 to 4), parent/caregivers tend to perceive their child's *mental* and *physical health* to be lower.

Aim 2

A multinomial logistic regression was performed to investigate which factors predict levels of parent/caregiver perceptions of child *mental health*, categorized as poor/fair, good, very good, and excellent. Specifically, the independent effects of CISDH and parent/caregiver perception of child *physical health* on mental perceptions while controlling for other variables, including child age, income, race, gender, ethnicity, and household size (refer to Table 2 for details). In this model, the outcome level 'excellent' was held as the baseline level of comparison. The likelihood ratio chi-square test yielded a value of 129.0 with a p-value <0.001. This indicates that the model is statistically significant and provides a better fit for the data. Furthermore, the model explains 11.4% of the variance in the data (See Table 2).

Predicted probabilities of parent/caregiver perceptions

Provided in Table 3 are the predicted probabilities for what factors predict how parent/caregivers perceive child *mental health* using CISDH and parent/caregivers' perception of child *physical health,* with three columns of information. The first column maintains all variables at their mean values. The second column focuses on the average change in predicted probability resulting from alterations in perceptions of *physical health*, while holding all other variables constant at their means. The final column examines the average change in predicted probability when the number of CISDH changes, again with all other variables held constant at their means.

Parent/Caregiver perception of 'poor/fair' child mental health. The results at the baseline reveal when all variables are kept at their mean values, the predicted probability of a parent/caregiver perceiving 'poor/fair' *mental health* (n=52) is 2.91% (se=.009), $p < .001$. When predicting parent/caregivers' perceptions of 'poor/fair' child *mental health* at various levels of perceived *physical health* within the context of CISDH, the highest predicted probability was observed among the parents/caregivers who perceive their child's *physical health* as low, this probability does not change significantly as the number of CISDH increases. The lowest predicted probability of parents/caregivers perceiving 'poor/fair' child *mental health,* was among the parents/caregivers who perceive their child to be in 'excellent' *physical health*, this probability gradually increases as the number of CISDH increases (see Figure 1). A one-unit increase in parent/caregivers' perceptions of *physical health* led to a 3.1% decrease (se=.009), $p < .001$, in the predicted probability of perceiving 'poor/fair' *mental health* with an average change in predicted probability, given a change in *physical health*, is statistically significant when considering low levels of CISDH. This change is not statistically significant when evaluating the highest number of CISDH present (Figure 2).

Parent/Caregiver of perception of 'good' child mental health. At the baseline, the predicted probability of a parent/caregiver perceiving 'good' *mental health* (n=137) is 19.1% (se=.023), $p < .001$. Parents/caregivers who perceive their child to be in 'excellent' *physical health* have the lowest predicted probability of perceiving 'good' child *mental health.* This probability slightly increases as the CISDH increases. Those who perceive their child's *physical health* as 'very good', 'good', or 'poor/fair' exhibit a

reduction in the predicted probability of perceiving 'good' *mental health* as the CISDH increases (see Figure 3). A one-unit increase in parent/caregivers' perceptions of *physical health* led to a 10.4% decrease (se= .027), $p < .001$, in the predicted probability of perceiving 'good' *mental health* with the average change in predicted probability, prompted by a change in *physical health*, is statistically significant when considering low levels of CISDH and not statistically significant when examining the highest number of CISDH (Figure 4).

Parent/Caregiver perception of 'very good' child mental health. The baseline probability of a parent/caregiver perceiving 'very good' *mental health* (n=200) is 35.0%, (se=.026), $p < .001$. Parents/caregivers who perceive their child's *physical health* as 'excellent' exhibit the lowest predicted probability of experiencing 'very good' *mental health* when there were no CISDH present and demonstrate the highest predicted probability at the highest number of CISDH present. The predicted probability of those with 'poor/fair' and 'good' *physical health* decreases as the number of CISDH decreases. A similar trend is observed for those with 'very good' *physical health*, albeit at a slower rate (see Figure 5). The 6.57% decrease (se=.034), in the probability of perceiving 'very good' *mental health* was not statistically significant across all CISDH levels, however, the average change in predicted probability is statistically significant only at low levels of CISDH (0-1) (Figure 6).

Parent/Caregiver perception of 'excellent' child mental health. At the baseline the predicted probability of a parent/caregiver perceiving 'excellent' child *mental health* (n=242) is 43%, (se= .028), $p < .001$. When predicting, parent/caregivers' perceptions of 'excellent' child *mental health* at various levels of perceived *physical health* across CISDH results reveal parents/caregivers who perceive their child's *physical health* as 'excellent' consistently demonstrate the highest predicted probability of perceiving 'excellent' *mental health,* yet this probability decreases as the number of CISDH increases. Although, parents/caregivers who perceive their child's *physical health* as 'very good' follow the same pattern of relationship, parents/caregivers who perceive their child to have 'good' and 'poor/fair' *physical health* demonstrate the inverse relationship. In other words, the predicted probability of those parent/caregivers who report 'good' and 'poor/fair' *physical health* , also demonstrating 'excellent' *mental health* appears

to increase as CISDH increases (see Figure 7). A one-unit increase in parent/caregivers' perceptions of *physical health* led to a 20.1% increase (se=.043), $p < .001$, in the probability of perceiving 'excellent' *mental health* that the average change in predicted probability, given a change in *physical health*, is statistically significant except for at the highest number of CISDH (see Figure 8).

Aim 3

Aim 3 examined the health-related social, economic, or environmental factors of concern (e.g., poverty or meeting basic needs, safety and violence, access to healthy foods, and racisms and discrimination), trust in healthcare providers since the COVID-19 pandemic, and the perception of trust in receiving high-quality care. Factors examined across the various categories of sociodemographic observed (e.g., income, child gender, geography, Medicaid status, and age).

Poverty or meeting basic needs. For parents/caregivers who identified poverty or meeting basic needs as a significant health-related issue or a major contributor to their child's poor health, we observed significant differences in proportions among different geographic areas. Specifically, those residing in the city of Cincinnati (66%) reported a higher percentage of concern compared to those living in the suburban areas of Cincinnati (55.9%), $p<.05$. Additionally, there were notable variations in concern between those with Medicaid (69.4%) and those without Medicaid (55.6%), $p<.05$. Overall, 59% of parents/caregivers within the sample reported concerns related to poverty or meeting basic needs as a crucial health-related issue for their children and contributes to poor child health (see Table 5).

Safety and violence. Concerning safety and violence, significant proportion differences ($p<.05$) among different income groups; household incomes of $49,000 or less (42.6%) and $50,000 to $100,000 (40.7%) expressed higher levels of safety and violence concern, while those with incomes exceeding $100,000 (21.6%) showed lower levels of concern. Significant differences ($p<.05$) were observed based on Medicaid participation status, with parents/caregivers having children covered by Medicaid (41.7%) expressing higher levels of concern, versus those not participating in Medicaid (29.5%). Overall, 32% of parents/caregivers within the sample reported concerns related to safety and violence as an important health-related issue for their children and contributes to poor child health (see Table 6).

Access to healthy foods. When examining the health-related concern of access to healthy foods, the only notable variation was observed in the geographic categories to be significant ($p<.05$); Parents/caregivers in the city of Cincinnati (16%) had a lower percentage of concern regarding access to healthy foods as a contributor to child poor health, compared to those living in the immediate Cincinnati suburbs within Hamilton County (25.5%). Overall, 22% of parents/caregivers within the sample reported concerns related to access to healthy foods (see Table 7).

Racism or discrimination. The fourth most significant category identified by parents/caregivers as an important health-related issue or a contributor to their child's poor health was racism or discrimination. Significant differences ($p<.05$) were found in proportions between those with household incomes of $49,999 or less (26.8%) and those with incomes of $100,000 or more (15.8%). Furthermore, there were significant differences ($p<.05$), in proportions among age groups, particularly between the 1-5 child age group (16.2%) and the 12-17 child age group (27%). Overall, 21% of parents/caregivers within the sample reported concerns related to racism and discrimination, as indicated in Table 8.

Trust in healthcare providers. Finally, concerning trust and the perception of trust in receiving high-quality care, parents/caregivers reported significant differences within income, geographic area, and Medicaid status groups. Income groups demonstrated significant proportion differences ($p<.05$), of trust between those who household income is $49,999 or less (17.6%) and $49,999 to $99,000 (17.5%) and those with incomes of $100,000 or more (5.5%). For the examination of geography, significant portion differences ($p<.05$), within geographic areas were observed between city of Cincinnati (16.9%) and Hamilton County suburbs of Cincinnati (10.7%). In addition, significant differences ($p<.05$), were found between parents/caregivers having children covered by Medicaid (23.6%), versus those who are not (8.4%). Overall, 12% of parents/caregivers within the sample reported concerns of trust in care, detailed in Table 9.

Discussion

The present study aimed to investigate the intricate relationship between parent/caregiver perceptions of mental and physical child health and the impact of SDOH. The findings illustrate and add

to the current literature on how various factors including social, environmental, economic, and demographic factors, influence parental/caregiver perceptions of child health. These insights are of particular relevance in the context of understanding the impact of social determinants with the intention of working towards child health equity.

Parent/Caregiver Perceptions of Child Health and SDOH Indicators of Need

This study builds upon prior research that CISDH influence perceptions of mental and physical health (Johnson et al., 2022). The findings of the study address current literature limitations and gaps, by adding a unique perspective on the role of multiple indicators of SDOH need in shaping parent/caregiver perceptions of child health. CISDH were consistently associated with poorer parent/caregiver perceptions of child health, highlighting the critical influence of social determinants on parent/caregiver assessments of child health. As hypothesized, the results revealed a small but significant negative association between both child mental health and CISDH; and child physical health and CISDH. These findings suggest that as individuals encounter multiple SDOH needs or burdens, their assessments of their child's mental and physical health tend to be less favorable. Such findings are compelling because as parents/caregivers are confronted with multiple needs across different categories, these experiences increasingly shape their perceptions of their child's health.

The analysis of predicted probabilities further illuminated intriguing patterns, identifying valuable insights into the nuanced interplay of parents/caregivers' perception of their child's mental health concerning perceptions of physical health and CISDH. Consistent with research of other special groups (e.g., elderly people) and global adult populations, once these entanglements of indicators are examined, the ways in which they effect and interact with each other become complex and intertwined (Johnson et al., 2022; Morello-Frosch & Shenassa, 2006; Wray et al., 2021). Among parents/caregivers perceiving low physical health in their children, the model predicts the highest probability of perceiving poor/fair mental health, aligning with the expected association between lower perceived physical health and increased likelihood of poor/fair mental health perceptions (Fox, 1999; Maugeri et al., 2020). Notably, this probability remains relatively stable as the number of CISDH increases. The lowest predicted

probability of perceiving ‘poor/fair’ mental health is observed in parents/caregivers perceiving 'excellent' physical health, yet this probability gradually rises with an accumulation of adverse social determinants. Even among those perceiving ‘excellent’ physical health, multiple determinants contribute to a higher probability of perceiving ‘poor/fair’ mental health. Changes in perceived physical health show a significant decrease in the predicted probability of ‘poor/fair’ mental health at low CISDH levels, emphasizing the impact of physical health on mental health perceptions when social determinants are minimal. However, this impact diminishes at higher CISDH levels, indicating a complex interaction between these factors.

Parents/caregivers perceiving their child's 'excellent' physical health tend to have the lowest predicted probability of perceiving ‘good’ mental health, implying an association between excellent physical health perception and a lower likelihood of equally positive mental health perception. However, as the CISDH increases, the impact of perceived physical health on the likelihood of perceiving ‘good’ mental health becomes more pronounced. Parents/caregivers perceiving their child's physical health as ‘very good’, ‘good’, or ‘poor/fair’ experience a reduction in the predicted probability of perceiving ‘good’ mental health with increasing CISDH, indicating that regardless of the perceived physical health category, an accumulation of CISDH needs is linked to a decreased likelihood of perceiving ‘good’ mental health. Similarly, to ‘poor/fair’ mental health perceptions, there is a decrease in the predicted probability of ‘good’ mental health perceptions with improved physical health perception changes. This change is statistically significant at low CISDH levels, emphasizing the impact of perceived physical health on mental health perceptions, especially when social determinants are minimal. However, this change loses statistical significance when examining the highest number of CISDH, indicating a reduced influence of perceived physical health on mental health perceptions in the presence of multiple adverse social determinants. This underscores the intricate and multifaceted interaction between perceived physical health and social determinants in shaping parental perceptions of child mental health.

For perceptions of ‘very good’ mental health, parents/caregivers perceiving their child's physical health as 'excellent', have the lowest predicted probability when CISDH are present, yet demonstrate the

highest probability when the highest number of CISDH are present. This intriguing finding indicates that, without the indicator of need, excellent perceived physical health is associated with the lowest likelihood of very good mental health. However, in the presence of multiple social determinants, excellent perceived physical health becomes a more favorable predictor of very good mental health. The predicted probability decreases for those with 'poor/fair' and 'good' physical health as the number of CISDH decreases, with a similar trend observed for those with 'very good' physical health, however, at a slower rate. This suggests that, regardless of perceived physical health category, a decrease in the number of adverse social determinants is linked to an increased likelihood of perceiving 'very good' mental health. The probability of perceiving 'very good' mental health does not significantly change with improved physical health perception, indicating limited impact when considering the entire range of social determinants. However, the average change in predicted probability is statistically significant only at low CISDH levels, emphasizing that the influence of perceived physical health on the likelihood of perceiving 'very good' mental health is more pronounced when social determinants are minimal. Again, further displaying the nuanced relationships between indicators of needs and parent/caregiver perception of child mental and physical health.

Among parents/caregivers perceiving their child's physical health as 'excellent', there is a consistent demonstration of the highest predicted probability of perceiving 'excellent' mental health. However, this probability decreases as the number of CISDH increases, indicating that the robust association between excellent perceived physical health and 'excellent' mental health weakens in the presence of multiple adverse social determinants. Similarly, parents/caregivers perceiving their child's physical health as 'very good' follow the same pattern, showing a decrease in the predicted probability of 'excellent' mental health with increasing CISDH. Conversely, parents/caregivers perceiving their child to have 'poor/fair' and 'good' physical health demonstrate the inverse relationship, with the predicted probability of those with 'good' and 'poor/fair' physical health demonstrating excellent mental health appearing to increase as CISDH increases. In contrast to other mental health perception groups, when considering improvement in physical health perception, there is an increase in perceiving 'excellent'

mental health, indicating a strong positive relationship between positive changes in perceived physical health and the likelihood of perceiving 'excellent' mental health. The average change in predicted probability, given a change in physical health, is statistically significant across various levels of CISDH, except at the highest number of CISDH, demonstrating that across most social determinant contexts, the impact of perceived physical health on 'excellent' mental health perceptions is significant, emphasizing the nuanced relationship between these factors.

Parent/Caregiver Perceptions of Community and Social-Environmental Context

The final aim of the study delved into health-related concerns and trust in healthcare providers among parents/caregivers. Significant variations were identified in concerns about poverty, safety, access to healthy foods, racism, and discrimination across different sociodemographic categories, emphasizing the multifaceted nature of these issues. Parents/caregivers in the city of Cincinnati expressed higher concerns about poverty compared to suburban areas, and those with lower incomes and Medicaid coverage showed heightened worries about safety and violence. Geographic differences were evident in concerns about access to healthy foods, with the city exhibiting lower percentages of concern. Moreover, variations in concerns about racism and discrimination were noted based on income and age groups. Finally, trust in healthcare providers displayed significant differences related to income, geography, and Medicaid status, underscoring the importance of considering diverse sociodemographic factors in healthcare initiatives.

Impact on Parent/Caregiver Perceptions

Parental/caregiver perceptions serve as a lens through which children's mental health can be viewed (Fram et al., 2015), often influenced by various environmental, socioeconomic, and demographic factors. The study reveals that even when children are perceived to be in excellent physical health, parental concerns about their mental well-being intensify in the face of heightened social and environmental challenges. This underscores the importance of recognizing and addressing parental perceptions as integral components of the broader landscape of child health assessment. The impact of SDOH on parental perceptions, in this study, make clear the intricate relationship between social factors

and health outcomes. As social and environmental needs increase, parental perceptions of both physical and mental health tend to be adversely affected, emphasizing the need for targeted initiatives to mitigate these disparities. Unexpected findings emerged for parents/caregivers who assessed their child's physical health as ‘good’ or ‘poor/fair’. In contrast to the previous groups, an inverse relationship was observed in these cases. As the number of CISDH indicators increased, the predicted probability of reporting ‘excellent’ mental health also increased. Though this may be a spurious correlation, it is worthy of further examination, suggesting potential resilience among these parent/caregivers, signaling that in the face of multiple social determinant challenges, they may exhibit a tendency to rate their child's mental health more optimistically. These findings extend previous research suggesting the key aspect of the study and recognizing the role of parent/caregiver perceptions and the intricate dynamics at play when assessing child mental health within the context of physical health and social determinants (Compton & Shim, 2015). Further adding to current literature that parent/caregiver perceptions are not only reflective of their child's well-being but are also influenced by the social determinants they face (Akobirshoev et al., 2020; Cronin & Gran, 2018; 2020; Fram et al., 2015; Hansen et al., 2022; Kimani-Murage et al., 2015; Morello-Frosch & Shenassa, 2006; Perrin et al., 2020; Torquati et al., 2011; Yaeger et al., 2022). The current study raises critical questions about the mechanisms driving these relationships: are parents/caregivers who perceive their children in ‘good’ or ‘poor/fair’ physical health more inclined to focus on their child's mental well-being when facing adversity or need? Or is there an underlying factor, such as a strong support network or coping mechanisms, that contributes to the observed inverse relationship?

Research and Policy Implications

Parent/caregiver perceptions provide insights beyond clinical metrics, encompassing emotional, social, and environmental factors. This holistic understanding is essential for developing comprehensive community and health strategies that consider the multifaceted nature of child well-being. Parent/caregiver perceptions may vary across socioeconomic groups and different cultural backgrounds, and may influence how parents perceive and interpret social, environmental, and health information and interactions. Understanding these cultural nuances is crucial for social, healthcare, and community

stakeholders to deliver culturally competent services, resources, and build trust with diverse communities. Understanding how parents perceive their child's mental and physical health enables the identification of stressors or challenges that may impact the overall family dynamics can provide further insights into parent/caregiver perceptions that contribute to evidence-based initiatives and policymaking. These policies can encompass a range of services and programs; including economic policies that address unfair wages and inequalities in the accessibility of employment and income opportunities, initiatives promoting food justice and food security, and education equity to ensure access to quality and relevant education opportunities for not only the child but the parent/caregiver as well. These findings underscore current knowledge of how disparities created by unequal access to resources and social vulnerabilities (Powers et al., 2020), can shape parent/caregiver perceptions. Efforts to promote health equity must prioritize initiatives that address SDOH factors while also empowering parents with the resources and support needed to foster positive perceptions of their child's health. Initiatives and policies need to consider the foundations of these perceptions and work to address the systemic factors that give them shape. Understanding the complex interplay between SDOH and individuals' perceptions aid and should guide in designing targeted initiatives to more effectively address community resources, health disparities, and provide equitable support, ensuring that vulnerable populations receive necessary and appropriate empathetic assistance and services.

Strengths, Limitations, and Future Directions

It's important to highlight the strengths of this study as it demonstrates the ability of the study to represent a large sample size of parents/caregivers' experiences and beliefs of their community directly with their perception of their child's health status, within a small geographic region. Aiding in affirming the unique nature of communities and in the reduction of applying broad initiatives and policies that are not helpful or at times in fact harmful. However, there are limitations to consider, especially when considering child health equity. With more expansive scales and measures, a study which examined multiple SDOH through a more detailed intersectional lens, would have been preferable, as a cumulative analysis may assume that every factor has the same kind of influence on every group, and which from

intersectional research we understand there are nuances in the strength and how these factors interact (Bauer, 2014; Crenshaw, 2013; Powers et al., 2020). The sample's demographic characteristics, including its limited representation of certain racial groups and high levels of education and income attainment, may affect the generalizability of the findings and limit the ability to address child health equity comprehensively. Additionally, the data collection during or immediately subsequent of the COVID-19 pandemic may have introduced unique contextual factors that influenced responses.

Future research should seek to include more diverse and representative samples, with a specific focus on under resourced populations, to better address child health equity. Furthermore, additional research could delve deeper into the underlying mechanisms influencing the relationships between physical health, mental health, and cumulative social determinants. For researchers, understanding the intricate relationship between parental perceptions, child health, and SDOH needs, offers avenues for further investigation and initiative development. It can inspire additional studies aimed at exploring specific mechanisms driving parental perceptions and how they influence child health outcomes, thereby advancing scientific knowledge in the field. Mix-methods research could provide valuable insights into the experiences and coping strategies of parents/caregivers, shedding light on the factors contributing further context to their perceptions of child mental health. Additionally, a longitudinal research approach could be considered to understand how these factors evolve and change over time and the impact of social challenges on parental attitudes towards community conditions, resources, and child health.

Conclusion

In conclusion, these findings emphasize the intricate and multifaceted nature of the factors influencing parent/caregiver perceptions of child mental and physical health, as well as their experiences and beliefs of the social, environmental and community context. The interaction between perceived physical and mental health and social determinants is complex and varies across different levels of social determinants. The study underscores the interconnected influence of social determinants and parent/caregiver perceptions of child health. Understanding this complexity is crucial for healthcare providers, policymakers, and researchers aiming to address parental perceptions of child mental health

comprehensively. The effect of multiple SDOH needs plays a significant role in shaping parental perceptions. The study indicated that as the number of SDOH needs increases, the influence of perceived physical health on mental health perceptions diminishes, highlighting the need to further investigate and consider these factors together. Recognizing and addressing the cumulative burden of needs for parent/caregivers is vital for initiates and strategies gear towards supporting families and the community.

References

Adamo, K. B., & Brett, K. E. (2014). Parental perceptions and childhood dietary quality. *Maternal and child health journal*, *18*, 978-995.

Akobirshoev, I., Mitra, M., Li, F. S., Dembo, R., Dooley, D., Mehta, A., & Batra, N. (2020). The compounding effect of race/ethnicity and disability status on children's health and health care by geography in the united states. *Medical care*, *58*(12), 1059-1068.

Bauer, G. R. (2014). Incorporating intersectionality theory into population health research methodology: Challenges and the potential to advance health equity. *Social Science & Medicine (1982), 110*, 10-17. https://doi.org/10.1016/j.socscimed.2014.03.022

Boardman, J. D. (2006). Self-rated health among US adolescents. *Journal of Adolescent Health*, *38*(4), 401-408.

Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual review of psychology*, *53*(1), 371-399.

Braveman, P., & Gruskin, S. (2003). Defining equity in health. *Journal of Epidemiology and Community Health (1979), 57*(4), 254-258. https://doi.org/10.1136/jech.57.4.254

Braveman, P. A., Cubbin, C., Egerter, S., Williams, D. R., & Pamuk, E. (2010). Socioeconomic disparities in health in the United States: what the patterns tell us. *American journal of public health*, *100 Suppl 1*(Suppl 1), S186–S196. https://doi.org/10.2105/AJPH.2009.166082.

Bzostek, S. H., & Beck, A. N. (2011). Familial instability and young children's physical health. *Social science & medicine*, *73*(2), 282-292.

Cafferata, G. L., & Kasper, J. D. (1985). Family structure and children's use of ambulatory physician services. *Medical Care, 23*(4), 350-360. https://doi.org/10.1097/00005650-198504000-00007

Centers for Disease Control and Prevention. (2020). Health Disparities. https://www.cdc.gov/healthyyouth/disparities/index.htm#:~:text=Health%20disparities%20are%20preventable%20differences,youth%20health%20risk%20behaviors%20persist.

Centers for Disease Control and Prevention. (2018). Social Determinants of Health: Know What Affects Health. Retrieved from https://www.cdc.gov/socialdeterminants/index.htm.

Cho, S., Crenshaw, K. W., & Mccall, L. (2013). Intersectionality: Theorizing power, empowering theory. *Signs: Journal of Women in Culture and Society, 38*(4)

Compton, M. T., & Shim, R. S. (2015). The social determinants of mental health. *Focus*, *13*(4), 419-425.

Collective, C. R. (1977). *'A Black Feminist Statement'* (pp. 210-218). na.

Crenshaw, K. W. (2013). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *The public nature of private violence: Women and the discovery of abuse* (pp. 93-118)

Crenshaw, Kimberle (1989) "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics," *University of Chicago Legal Forum*: Vol. 1989: Iss. 1, Article 8. Available at: http://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8

Cronin, C. E., & Gran, B. K. (2018). The importance of environment: Neighborhood characteristics and parent perceptions of child health. *Journal of Child Health Care*, 22(4), 658-669. https://doi.org/10.1177/1367493518768453

Delaney, L., & Smith, J. P. (2012). Childhood health: Trends and consequences over the life course. *The Future of Children*, 22(1), 43-63. https://doi.org/10.1353/foc.2012.0003

DeSalvo, K. B., Fisher, W. P., Tran, K., Bloser, N., Merrill, W., & Peabody, J. (2006). Assessing measurement properties of two single-item general health measures. *Quality of Life Research*, 15, 191-201.

Escobedo, P., Gonzalez, K. D., Kuhlberg, J., Calanche, M. L., Baezconde-Garbanati, L., Contreras, R., & Bluthenthal, R. (2019). Community needs assessment among Latino families in an urban public housing development. *Hispanic Journal of Behavioral Sciences*, *41*(3), 344-362.

Fanta, M., Ladzekpo, D., & Unaka, N. (2021). Racism and pediatric health outcomes. *Current Problems in Pediatric and Adolescent Health Care*, *51*(10), 101087.

Fox, K. R. (1999). The influence of physical activity on mental well-being. *Public Health Nutrition, 2*(3a), 411-418. https://doi.org/10.1017/S1368980099000567

Franz, B. , Flint, J. & Cronin, C. (2022). Assessing the Strategies That Children's Hospitals Adopt to Engage the Social Determinants of Health in US Cities. *Journal of Public Health Management and Practice, 28* (1), E146-E154. doi: 10.1097/PHH.0000000000001227.

Fram, M. S., Ritchie, L. D., Rosen, N., & Frongillo, E. A. (2015). Child experience of food insecurity is associated with child diet and physical activity. The Journal of Nutrition, 145(3), 499-504. https://doi.org/10.3945/jn.114.194365

Haapanen, K. A., & Christens, B. D. (2021). Community-engaged Research Approaches: Multiple Pathways To Health Equity. *American Journal of Community Psychology*, *67*

Hacker, K., & Houry, D. (2022). Social needs and social determinants: The role of the centers for disease control and prevention and public health. *Public Health Reports (1974), 137*(6), 1049-1052. https://doi.org/10.1177/00333549221120244

Handyside, L., Warren, R., Devine, S., & Drovandi, A. (2021). Health needs assessment in a regional community pharmacy using the PRECEDE-PROCEED model. *Research in Social and Administrative Pharmacy*, *17*(6), 1151-1158.

Hansen, A. S., Telléus, G. K., Mohr-Jensen, C., & Lauritsen, M. B. (2021). Parent-perceived barriers to accessing services for their child's mental health problems. *Child and Adolescent Psychiatry and Mental Health*, *15*, 1-11.

Huxley, P., & Thornicroft, G. (2003). Social inclusion, social quality and mental illness. *British Journal of Psychiatry, 182*(4), 289-290. https://doi.org/10.1192/bjp.182.4.289

HealthyPeople.gov. (2019). Healthy People 2030 Framework. U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. https://www.healthypeople.gov/2020/About-Healthy-People/Development-Healthy-People-2030/ Framework HealthyPeople.gov

Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: a review of twenty-seven community studies. *Journal of health and social behavior*, 21-37.

Johnson, K. F., Brookover, D. L., & Borden, N. (2022). General health and depression outcomes related to cumulative indicators of unmet social determinant of health needs for college students. *Journal of College Student Psychotherapy, 36*(4), 370-391. https://doi.org/10.1080/87568225.2021.1881752

Key, K. D., Furr-Holden, D., Lewis, E. Y., Cunningham, R., Zimmerman, M. A., Johnson-Lawrence, V., & Selig, S. (2019). The continuum of community engagement in research: A roadmap for understanding and assessing progress. *Progress in community health partnerships: research, education, and action*, *13*(4), 427-434.

Kimani-Murage, E. W., Muthuri, S. K., Oti, S. O., Mutua, M. K., Van De Vijver, S., & Kyobutungi, C. (2015). Evidence of a double burden of malnutrition in urban poor settings in Nairobi, Kenya. *PloS one*, *10*(6), e0129943.

Krieger, N. (2021). *Ecosocial theory, embodied truths, and the people's health*. Oxford University Press.

Krieger, N. (2005). Embodiment: a conceptual glossary for epidemiology. *Journal of Epidemiology & Community Health*, *59*(5), 350-355.

Krieger, N. (2012). Methods for the scientific study of discrimination and health: an ecosocial approach. *American journal of public health*, *102*(5), 936-944.

Marmot, M., Prof, Friel, S., PhD, Bell, R., PhD, Houweling, T. A., PhD,Taylor, S., PhD, on behalf of the Commission on Social Determinants of Health, Commission Social Determinants Hlt, & Commission on Social Determinants of Health. (2008). Closing the gap in a generation: Health equity through action on the social determinants of health. *The Lancet (British Edition), 372*(9650), 1661-1669. https://doi.org/10.1016/S0140-6736(08)61690-6

Maugeri, G., Castrogiovanni, P., Battaglia, G., Pippi, R., D'Agata, V., Palma, A., Di Rosa, M., & Musumeci, G. (2020). The impact of physical activity on psychological health during covid-19 pandemic in italy. *Heliyon, 6*(6), e04315-e04315. https://doi.org/10.1016/j.heliyon.2020.e04315

McMullin, J., Bone, M., Pang, J. K., Pang, V. K., & McEligot, A. (2010). Native hawaiian voices: Enhancing the role of cultural values in community based participatory research. *Californian Journal of Health Promotion, 8*(SI), 52-62. https://doi.org/10.32398/cjhp.v8iSI.2042

Mitchell, C., Schneper, L. M., & Notterman, D. A. (2016). DNA methylation, early life environment, and health outcomes. *Pediatric research*, *79*(1), 212-219.

Moore de Peralta, A., Davis, L., Brown, K., Fuentes, M., Falconer, N. S., Charles, J., & Eichinger, M. (2020). Using Community-Engaged Research to Explore Social Determinants of Health in a Low-Resource Community in the Dominican Republic: A Community Health Assessment. *Hispanic Health Care International*, 18(3), 127-137.

Morello-Frosch, R., & Shenassa, E. D. (2006). The environmental "riskscape" and social inequality: Implications for explaining maternal and child health disparities. *Environmental Health Perspectives, 114*(8), 1150-1153. https://doi.org/10.1289/ehp.8930

Office of Disease Prevention and Health Promotion. (2021).Healthy People 2020: Disparities. U.S. Department of Health and Human Services.https://www.healthypeople.gov/2020/about/foundation-healthmeasures/Disparities

Ompad, D. C., Galea, S., Caiaffa, W. T., & Vlahov, D. (2007). Social determinants of the health of urban populations: methodologic considerations. *Journal of Urban Health*, *84*, 42-53.

Ozieh, M. N., Garacci, E., Walker, R. J., Palatnik, A., & Egede, L. E. (2021). The cumulative impact of social determinants of health factors on mortality in adults with diabetes and chronic kidney disease. *BMC Nephrology*, 22(1), 76-76. https://doi.org/10.1186/s12882-021-02277-2

Parker, W. M. (2010). *Trajectories of children's health inequalities and the role of parental resources*. Syracuse University.

Penman-Aguilar, A., Talih, M., Huang, D., Moonesinghe, R., Bouye, K., & Beckles, G. (2016). Measurement of health disparities, health inequities, and social determinants of health to support the advancement of health equity. *Journal of public health management and practice: JPHMP*, *22*(Suppl 1), S33.

Perrin, J. M., Kenney, G. M., & Rosenbaum, S. (2020). Medicaid and child health equity. The New England Journal of Medicine, 383(27), 2595-2598. https://doi.org/10.1056/NEJMp2030646

Petteway, R. J., Mujahid, M., Allen, A., & Morello-Frosch, R. (2019). The body language of place: A new method for mapping intergenerational "geographies of embodiment" in place-health research. *Social Science & Medicine*, *223*, 51-63.

Powers, S. L., Lee, K. J., Pitas, N. A., Graefe, A. R., & Mowen, A. J. (2020). Understanding access and use of municipal parks and recreation through an intersectionality perspective. *Journal of Leisure Research*, 51(4), 377-396. https://doi.org/10.1080/00222216.2019.1701965

Priest, N., Paradies, Y., Trenerry, B., Truong, M., Karlsen, S., & Kelly, Y. (2013). A systematic review of studies examining the relationship between reported racism and health and wellbeing for children and young people. *Social Science & Medicine* (1982), 95, 115-127. https://doi.org/10.1016/j.socscimed.2012.11.031

Protano, C., Valeriani, F., Macedonio, A., Cammarota, F., Romano Spica, V., Orsi, G. B., & Vitali, M. (2017). Family-based social determinants and child health: Cross-sectional study. *Pediatrics International*, *59*(2), 201-208.

Riley, A. W., Finney, J. W., Mellits, E. D., Starfield, B., Kidwell, S., Quaskey, S., ... & Shematek, J. P. (1993). Determinants of children's health care use: an investigation of psychosocial factors. *Medical care*, 767-783.

Salinas-Miranda, A. A., Salemi, J. L., King, L. M., Baldwin, J. A., Berry, E. L., Austin, D. A., Scarborough, K., Spooner, K. K., Zoorob, R. J., & Salihu, H. M. (2015). Adverse childhood experiences and health-related quality of life in adulthood: Revelations from a community needs assessment. *Health and Quality of Life Outcomes, 13*(1), 123-123. https://doi.org/10.1186/s12955-015-0323-4

Schmeer, K. K. (2012). Early childhood economic disadvantage and the health of hispanic children. *Social Science & Medicine (1982), 75*(8), 1523-1530. https://doi.org/10.1016/j.socscimed.2012.05.031

Short, S. E., & Mollborn, S. (2015). Social determinants and health behaviors: Conceptual frames and empirical advances. *Current Opinion in Psychology, 5*, 78-84. https://doi.org/10.1016/j.copsyc.2015.05.002

Singu, S., Acharya, A., Challagundla, K., & Byrareddy, S. N. (2020). Impact of social determinants of health on the emerging COVID-19 pandemic in the United States. *Frontiers in public health*, *8*, 406.

Spencer, N. (2018). The social determinants of child health. *Paediatrics and Child Health, 28*(3), 138-143. https://doi.org/10.1016/j.paed.2018.01.001

Torquati, J. C., Raikes, H. H., Huddleston-Casas, C. A., Bovaird, J. A., & Harris, B. A. (2011). Family income, parent education, and perceived constraints as predictors of observed program quality and parent rated program quality. *Early Childhood Research Quarterly*, *26*(4), 453-464.

Trent, M., Dooley, D. G., Dougé, J., Cavanaugh, R. M., Lacroix, A. E., Fanburg, J., ... & Wallace, S. B. (2019). The impact of racism on child and adolescent health. *Pediatrics*, *144*(2)

Turney, K. (2011). Maternal depression and childhood health inequalities. *Journal of Health and Social Behavior, 52*(3), 314-332. https://doi.org/10.1177/0022146511408096

Turney, K., Lee, H., & Mehta, N. (2013). Social determinants of child health. *Social Science & Medicine*, *95*, 1-132.

Vaughn, L. M., Whetstone, C., Boards, A., Busch, M. D., Magnusson, M., Määttä, S., Sahlgrenska akademin, Göteborgs universitet, Gothenburg University, Institutionen för vårdvetenskap och hälsa, Institute of Health and Care Sciences, & Sahlgrenska Academy. (2018). Partnering with insiders: A review of peer models across community-engaged research, education and social care. *Health & Social Care in the Community, 26*(6), 769-786. https://doi.org/10.1111/hsc.12562

Victora, C. G., Wagstaff, A., Schellenberg, J. A., Gwatkin, D., Claeson, M., & Habicht, J. (2003). Applying an equity lens to child health and mortality: More of the same is not enough. *The Lancet (British Edition), 362*(9379), 233-241. https://doi.org/10.1016/S0140-6736(03)13917-7

Viner, R. M., Ozer, E. M., Denny, S., Marmot, M., Resnick, M., Fatusi, A., & Currie, C. (2012). Adolescence and the social determinants of health. *The lancet*, *379*(9826), 1641-1652.

White, K., Haas, J. S., & Williams, D. R. (2012). Elucidating the role of place in health care disparities: The example of Racial/Ethnic residential segregation. *Health Services Research, 47*(3pt2), 1278-1299. https://doi.org/10.1111/j.1475-6773.2012.01410.x

World Health Organization (2020a). About social determinants of health. https://www.who.int/social_determinants/sdh_definition/en/

World Health Organization (2020b). Health equity. https://www.who.int/topics/health_equity/en/

Wray, C. M., Tang, J., López, L., Hoggatt, K., & Keyhani, S. (2021). Association of social determinants of health and their cumulative impact on hospitalization among a national sample of community-dwelling us adults. *Journal of general internal medicine*, 1-8.

Yaeger, J. P., Alio, A. P., & Fiscella, K. (2022). Addressing child health equity through clinical decision-making. *Pediatrics (Evanston), 149*(2), 1. https://doi.org/10.1542/peds.2021-053698

Table 1

Summary Statistics

		N	%
Health			
Mental Health Perceptions	Poor/Fair	57	7.85
	Good	151	20.8
	Very Good	220	30.3
	Excellent	298	41.05
	Total	726	100
Physical Health Perceptions			
	Poor/Fair	23	3.16
	Good	94	12.93
	Very Good	193	26.55
	Excellent	417	57.36
	Total	726	100
Socio-Demographics			
Food Insecurity	Insecure	135	18.57
	Secure	592	81.43
	Total	727	100
Medicaid Participation	Yes	256	37.1
	No	434	62.9
	Total	690	100
Geography	City of Cincinnati	308	42.78
	Hamilton County Suburbs	412	57.22
	Total	720	100
Education	High school diploma or less	162	22.34
	Some college or technical/vocational	188	25.93
	Four-year degree	210	28.97
	some or obtained graduate/professional	165	22.76
	Total	725	100
Child Age	Children Ages 1-5	136	19.6
	Children Ages 6-11	214	30.84
	Children Ages 12-17	344	49.57
	Total	694	100
Income	$49999 or less	241	35.97
	$50000-$99999	160	23.88
	$100000 or more	269	40.15
	Total	670	100
Race	Black	213	29.79
	White	445	62.24
	Multi-Racial	20	2.8
	Other	37	5.17
	Total	715	100
Ethnicity	Hispanic	31	4.34
	Not Hispanic	684	95.66
	Total	715	100
Child Gender	Boy	354	49.24
	Girl	365	50.76
	Total	719	100
Household Size	2 in the house	75	10.29
	3 in the house	168	23.05
	4 in the house	268	36.76
	5 in the house	119	16.32
	6+ in the house	99	13.58
	Total	729	100
Relationship to Child	birth parent	634	86.97
	step-parent	11	1.51
	foster parent	2	0.27
	adoptive parent	16	2.19
	grandparent	42	5.76
	aunt / uncle	10	1.37
	guardian	6	0.82
	sibling	3	0.41
	partner of child's parent	2	0.27
	other/NA	3	0.42
	Total	729	100

Table 2

Main Effects Model for Parent/Caregiver Perception Child Mental Health with Robust Standard Errors

	Mental Health Poor/Fair	Good	Very Good	Excellent
Physical Health	-1.532***	-1.014***	-0.656***	0
	(0.255)	(0.210)	(0.187)	(.)
CISDH	0.451	0.115	0.159	0
	(0.232)	(0.161)	(0.166)	(.)
Children Ages				
Ages 6-11	1.651*	0.660	-0.0574	0
	(0.796)	(0.459)	(0.353)	(.)
Ages 12-17	2.546***	1.248**	0.363	0
	(0.745)	(0.405)	(0.336)	(.)
Income				
$50000-$99999	0.354	-0.304	0.477	0
	(0.611)	(0.481)	(0.472)	(.)
$100000 or more	0.268	-0.863	0.543	0
	(0.635)	(0.493)	(0.503)	(.)
Race/Ethnicity				
White	1.119	0.710	0.248	0
	(0.627)	(0.395)	(0.372)	(.)
Multi-Racial	1.261	0.294	-0.353	0
	(1.057)	(0.818)	(0.753)	(.)
Other	1.772	0.439	-0.856	0
	(1.106)	(0.790)	(0.718)	(.)
Girl	-0.137	0.0530	0.0133	0
	(0.398)	(0.296)	(0.260)	(.)
Household Size				
3 in the house	-1.402*	-0.218	-0.152	0
	(0.670)	(0.597)	(0.504)	(.)
4 in the house	-1.200	-0.0183	0.337	0
	(0.623)	(0.563)	(0.497)	(.)
5 in the house	-0.128	0.579	0.525	0
	(0.721)	(0.652)	(0.517)	(.)
6+ in the house	-2.179*	0.0574	0.118	0
	(0.940)	(0.637)	(0.546)	(.)
Hispanic				
No	-0.867	-1.265*	-1.098	0
	(0.842)	(0.539)	(0.584)	(.)
Constant	-0.101	1.896	1.388	0
	(1.239)	(0.975)	(0.914)	(.)
Log Pseudolikelihood	-671.6			
Wald Chi2	129.0			
Prob > Chi2	4.90e-10			
Pseudo R-squared	0.114			
N	631			

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3

Predicted Probabilities for Parent/Caregiver Perception of Child Mental Health

	Baseline	Change in Physical Health	Change in CISDH
Child Mental Health			
Pr. Mental Health= Poor/Fair	0.0291***	-0.0310***	0.0105
	(0.00851)	(0.00761)	(0.00644)
Pr. Mental Health= Good	0.191***	-0.104***	0.00456
	(0.0227)	(0.0266)	(0.0195)
Pr. Mental Health= Very Good	0.350***	-0.0657	0.0240
	(0.0264)	(0.0340)	(0.0312)
Pr. Mental Health= Excellent	0.430***	0.201***	-0.0390
	(0.0280)	(0.0429)	(0.0364)
Observations	631	631	631

All variables held at their means.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: *Entries are the change in predicted probabilities with standard errors of each perception of child mental health a parent/caregiver report.*

Table 4

Predicted Probability Model Summary Statistics of Parent/Caregiver Perception of Mental Health

Mental Health Perception	N	%
Poor/Fair	52	8.24
Good	137	21.71
Very Good	200	31.70
Excellent	242	38.35
Total	631	100.00

Figure 1

Predicted probability of parents/caregivers perceiving "poor/fair" child mental health

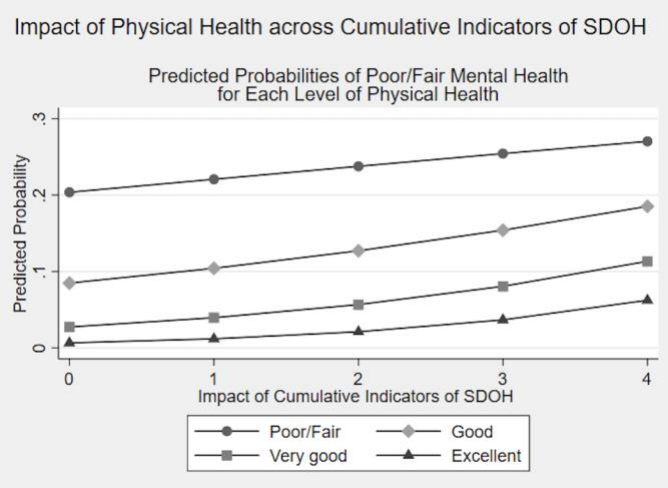
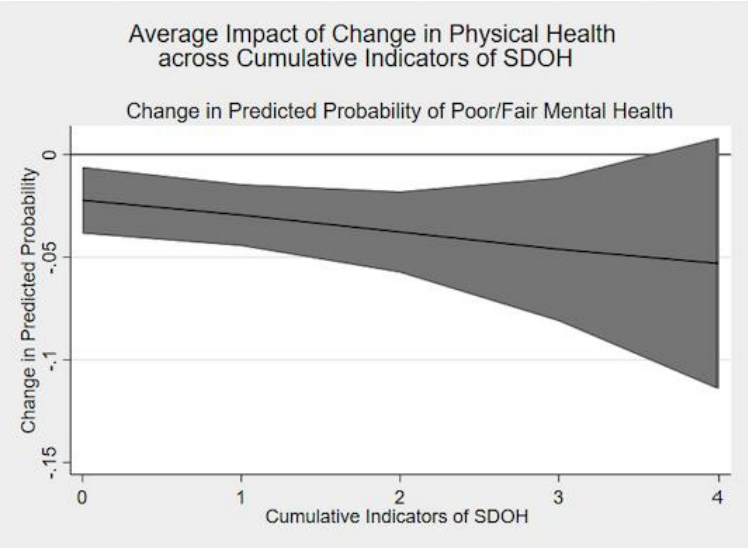


Figure 2

Change in predicted probability of parents/caregivers perceiving "poor/fair" child mental health



Note: *Figure shows the predicted probabilities of each parent/caregiver perception of child mental health, with 95 % confidence intervals for those probabilities.*

Figure 3

Predicted probability of parents/caregivers perceiving "good" child mental health

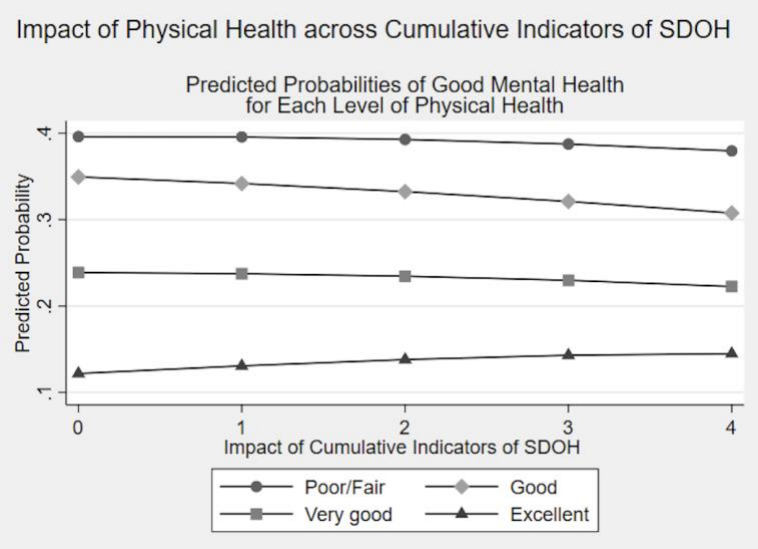
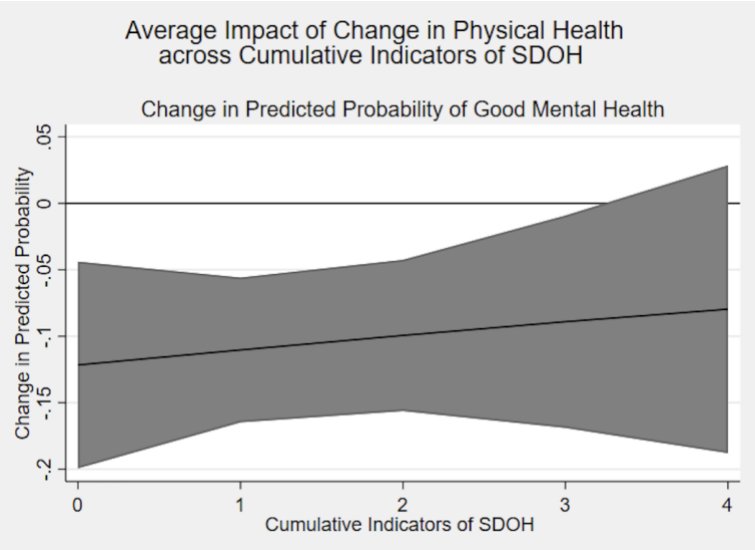


Figure 4

Change in predicted probability of parents/caregivers perceiving "good" child mental health



Note: *Figure shows the predicted probabilities of each parent/caregiver perception of child mental health, with 95 % confidence intervals for those probabilities.*

Figure 5

Predicted probability of parents/caregivers perceiving "very good" child mental health

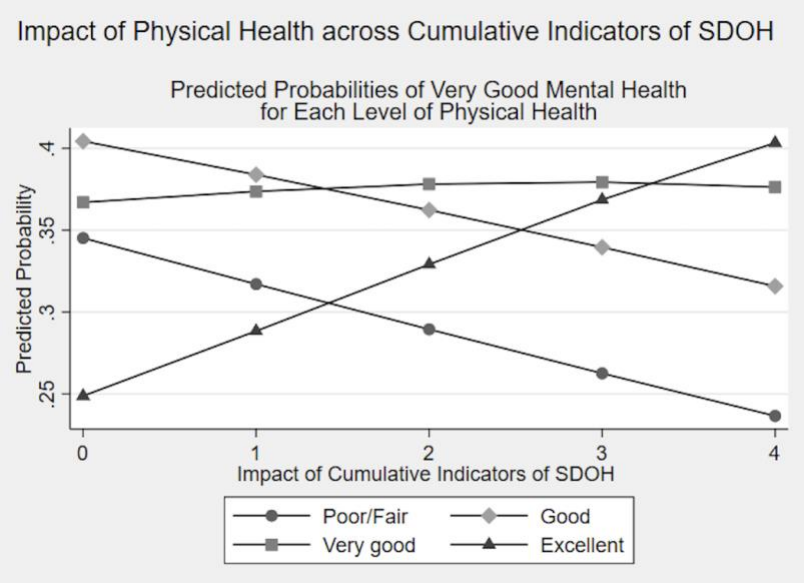
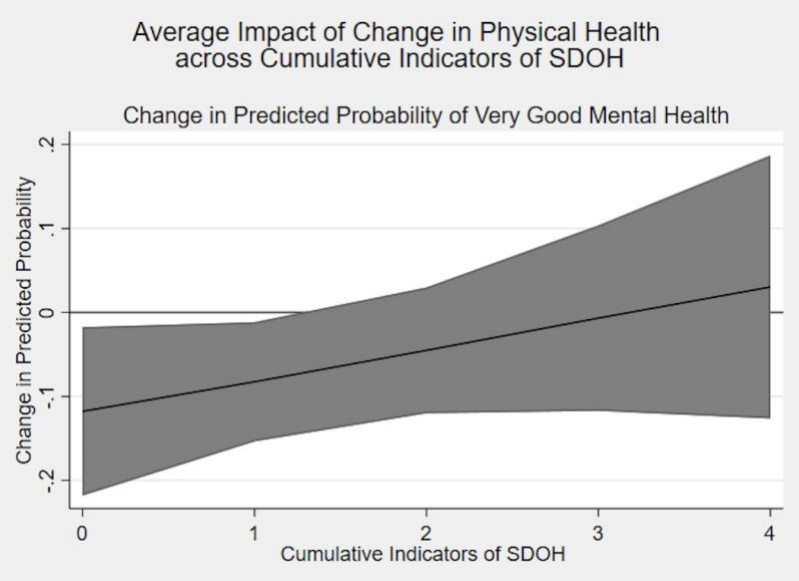


Figure 6

Change in predicted probability of parents/caregivers perceiving "very good" child mental health



Note: *Figure shows the predicted probabilities of each parent/caregiver perception of child mental health, with 95 % confidence intervals for those probabilities.*

Figure 7

Predicted probability of parents/caregivers perceiving "excellent" child mental health

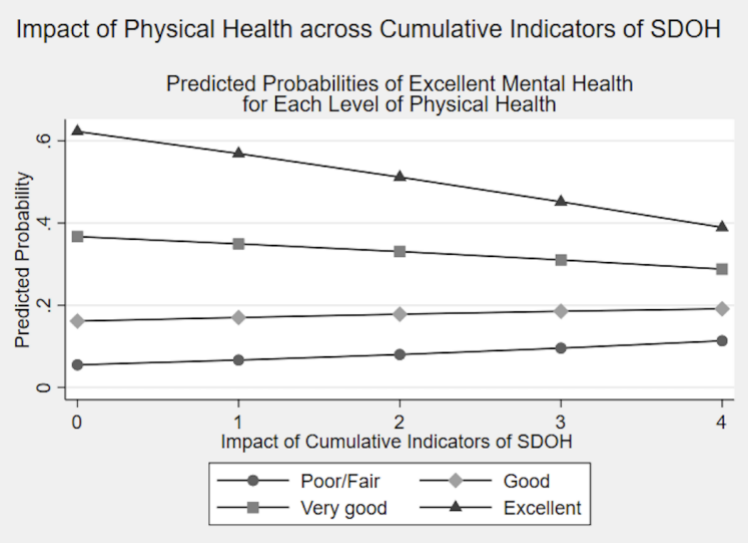
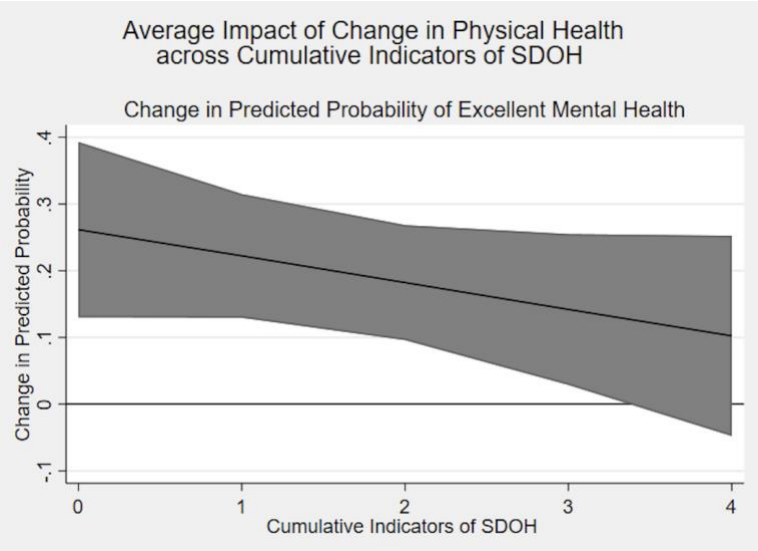


Figure 8

Change in predicted probability of parents/caregivers perceiving "excellent" child mental health



Note: *Figure shows the predicted probabilities of each parent/caregiver perception of child mental health, with 95 % confidence intervals for those probabilities.*

Table 5

Important health-related factors impacting children- poverty or meeting basic needs

Poverty or Meeting Basic Needs

	N (% within each category)	
	Top Concern	Not a Top Concern
Income		
$49,999 or Less	123 (58.9%)	86 (41.1%)
$50,000-99,999	112 (63.3%)	65 (36.7%)
$100,000+	174 (59.8%)	117 (40.2%)
Child Gender		
Girl	222 (61.3%)	140 (38.7%)
Boy	202 (56.7%)	154 (43.3%)
Geography		
City of Cincinnati	169 (66%)	87 (34%)
Suburbs of Cincinnati	260 (55.9%)	207 (44.3%)
Medicaid		
Yes	150 (69.4%)	66 (30.6%)
No	260 (55.6%)	208 (44.4%)
Age		
Age 1-5	118 (61.5%)	74 (38.5%)
Age 6-11	135 (59%)	94 (41%)
Age 12-17	149 (57.5%)	110 (42.5%)
Total	430 (59%)	299 (41%)

Table 6

Important health-related factors impacting children-safety and violence

Safety & Violence

	N (% within each category)	
	Top Concern	Not a Top Concern
Income		
$49,999 or Less	89 (42.6%)	120 (57.4%)
$50,000-99,999	72 (40.7%)	105 (59.3%)
$100,000+	63 (21.6%)	228 (78.4%)
Child Gender		
Girl	109 (30.1%)	253 (69.9%)
Boy	126 (35.4%)	230 (64.6%)
Geography		
City of Cincinnati	87 (34%)	169 (66%)
Suburbs of Cincinnati	148 (31.7%)	319 (68.3%)
Medicaid		
Yes	90 (41.7%)	126 (58.3%)
No	138 (29.5%)	330 (70.5%)
Age		
Age 1-5	68 (35.4%)	124 (64.6%)
Age 6-11	79 (34.3%)	151 (65.7%)
Age 12-17	73 (28.2%)	186 (71.8%)
Total	238 (32.6%)	491 (67.4%)

Table 7
Important health-related factors impacting children-food access

Food Access

	N (% within each category)	
	Top Concern	Not a Top Concern
Income		
$49,999 or Less	40 (19.1%)	169 (80.9%)
$50,000-99,999	49 (27.7%)	128 (72.3%)
$100,000+	63 (21.7%)	227 (78.3%)
Child Gender		
Girl	84 (23.2%)	278 (76.8%)
Boy	78 (21.8%)	279 (78.2%)
Geography		
City of Cincinnati	41 (16%)	215 (84%)
Suburbs of Cincinnati	119 (25.5%)	347 (74.5%)
Medicaid		
Yes	45 (20.8%)	171 (79.2%)
No	110 (23.5%)	358 (76.5%)
Age		
Age 1-5	47 (24.5%)	145 (78%)
Age 6-11	45 (19.7%)	184 (80.3%)
Age 12-17	57 (22%)	202 (78%)
Total	163 (22.3%)	556 (77.7%)

Table 8

Important health-related factors impacting children-racism & discrimination

Racism & Discrimination

	N (% within each category)	
	Top Concern	Not a Top Concern
Income		
$49,999 or Less	56 (26.8%)	153 (73.2%)
$50,000-99,999	39 (22%)	138 (78%)
$100,000+	46 (15.8%)	245 (84.2%)
Child Gender		
Girl	86 (23.8%)	276 (76.2%)
Boy	66 (18.5%)	291 (81.5%)
Geography		
City of Cincinnati	54 (21.1%)	202 (78.9%)
Suburbs of Cincinnati	98 (21%)	368 (79%)
Medicaid		
Yes	51 (23.5%)	166 (76.5%)
No	95 (20.3%)	374 (79.7%)
Age		
Age 1-5	31 (16.2%)	160 (83.8%)
Age 6-11	49 (21.3%)	181 (78.7%)
Age 12-17	70 (27%)	189 (73%)
Total	155 (21.2%)	155 (78.8)

Table 9
Parental/caregiver trust of healthcare providers

		Statement "I believe my family will receive high quality care from health care providers"		Statement "Covid has improved my trust of health care professionals"	
		N (% within each category)			
		Disagree	Agree	Disagree	Agree
Income	$49,999 or Less	36 (17.6%)	169 (82.4%)	106 (55.5%)	85 (44.5%)
	$50,000-99,999	31 (17.5%)	146 (82.5%)	86 (57.7%)	63 (42.3%)
	$100,000+	16 (5.5%)	274 (94.5%)	93 (36.2%)	164 (63.8%)
Child Gender	Girl	43 (12.2%)	311 (86.4%)	147 (46.1%)	162 (51.4%)
	Boy	49 (13.6%)	309 (87.8%)	153 (48.6%)	172 (53.9%)
Area	City of Cincinnati	43 (16.9%)	211 (83.1%)	110 (47.8%)	120 (52.2%)
	Suburbs of Cincinnati	49 (10.7%)	411 (89.3%)	191 (47%)	215 (53.0%)
Medicaid	Yes	50 (23.6%)	162 (76.4%)	114 (55.1%)	93 (44.9%)
	No	39 (8.4%)	428 (991.6%)	175 (43.5%)	227 (56.6%)
Age	Age 1-5	34 (17.8%)	157 (82.2%)	70 (42.7%)	94 (57.3%)
	Age 6-11	28 (12.2%)	201 (87.8%)	96 (47.5%)	106 (52.5%)
	Age 12-17	30 (11.9%)	223 (88.1%)	117 (50.9%)	113 (49.1%)
Totals		92 (12.7%)	628 (86.1%)	305 (41.8%)	336 (46.1%)

Appendix A: 2021 Child Health Survey Questions

I. INTRODUCTION: "Hello, this is _____ calling for the 2021 Community Needs Assessment Survey. I am calling from the University of Cincinnati, on behalf of Cincinnati Children's Hospital Medical Center. We are conducting CONFIDENTIAL survey about the health of children in Hamilton County. Approximately 800 adults from Greater Cincinnati will participate in this research study and I'd really appreciate your help and cooperation.

First, are there any children under the age of 18 currently living in your household?"

1=YES → Continue
2=NO → [TERMINATE: "Sorry, but this survey is only for people living in households with children. Thank you very much for your time."

II. "We need to interview the parent or guardian who is the primary caregiver of the children in your household. Would that be you?

1=YES → Continue to Screener Question IV.
2=NO → [ASK: "Can I speak with the person who is the primary caregiver of the children in your household?]

IF NO AND INFORMANT PUTS THE PRIMARY CAREGIVER ON THE LINE, REPEAT INTRODUCTORY PARAGRAPH, THEN SKIP TO SCREENER II.

III. "I will be asking questions about children in your community, children in your household and one particular child in your household. Could you please tell me, of the children who currently live in your household under the age of 18, including babies and small children, who had the most recent birthday?"

[CONFIRM R IS PRIMARY CAREGIVER OF THAT CHILD]

"Some of the questions I will be asking will be specifically about that child. Could you please give me the first name of that child, so I can refer to him or her?"

[RECORD CHILD'S NAME] _____

Q 19b. [CELL PHONE SAMPLE ONLY] "Now thinking about your telephone use… Is there at least one telephone INSIDE your home that is currently working and is not a cell phone?"

1=YES, HOME TELEPHONE
2=NO HOME TELEPHONE

9=DON'T KNOW/NA/REFUSED (VOLUNTEERED)
0=INAP
[IF CELL PHONE ONLY OR LANDLINE ONLY SKIP Q19C]

(IPR STANDARD WEIGHTING VARIABLE)
Q 19c. "Of all the telephone calls that you receive, do you get . . . (READ 1 TO 5)

[READ AND RANDOMIZE OPTIONS 1 AND 5 -- KEEP 3 ALWAYS IN THE MIDDLE]

1=all calls on a cell phone,
2=almost all calls on a cell phone,
3=some on a cell phone and some on a regular home phone,
4=almost all calls on a regular home phone, or
5=all calls on a regular home phone?"

9=DON'T KNOW/NA/REFUSED [VOLUNTEERED DO NOT READ]
0=INAP

(IPR STANDARD WEIGHTING VARIABLE)
Q 20. What is your age?

RECORD # _____ [WHOLE NUMBER ONLY; GREATER THAN 0]

95=NINETY-FIVE YEARS OF AGE OR OLDER
98=DON'T KNOW (DO NOT PROBE)
99=NA/REFUSED

Q9 (IPR STANDARD WEIGHTING VARIABLE)
Q 21. What is the last grade or class you completed in school? [INTERVIEWER: DO NOT READ RESPONSES]

1=GRADE 8 OR LOWER
2=HIGH SCHOOL, DID NOT COMPLETE
3=HIGH SCHOOL DIPLOMA OR EQUIVALENT
4=BUSINESS, TECHNICAL, OR VOCATIONAL SCHOOL AFTER HIGH SCHOOL
5=SOME COLLEGE, NO DEGREE
6=TWO-YEAR OR ASSOCIATE'S COLLEGE DEGREE
7=FOUR-YEAR COLLEGE DEGREE
8=GRADUATE OR PROFESSIONAL SCHOOL AFTER COLLEGE, NO DEGREE
9=GRADUATE OR PROFESSIONAL DEGREE

98= DON'T KNOW (DO NOT PROBE)
99=NA/REFUSED

V5 Q4 (IPR STANDARD WEIGHTING VARIABLE)
Q 22. "What is your race? Is it black, white, or some other race?"

1. BLACK/AFRICAN-AMERICAN
2. WHITE
4. NATIVE AMERICAN
5. ASIAN-PACIFIC ISLANDER
6. MULTI-RACIAL
7. OTHER (PROBE) _____ (RECORD VERBATIM RESPONSE)
9. NA/REFUSED
0. INAP

V5 Q5 (IPR STANDARD WEIGHTING VARIABLE)
Q 23. Are you Hispanic or Latino?

1=YES
2=NO
8= DON'T KNOW (DO NOT PROBE)
9=NA/REFUSED

V5 Q13B

Q 24. "What is your [CHILD]'s race? Is it black, white, or some other race?"

1. BLACK/AFRICAN-AMERICAN
2. WHITE

4. AMERICAN INDIAN OR ALASKA NATIVE
5. ASIAN

6. MULTI-RACIAL
7. OTHER (PROBE) _____ (RECORD VERBATIM RESPONSE)
9. NA/REFUSED
0. INAP

V5 Q13C
Q 25. Do you consider [CHILD] to be Hispanic or Latino?

1=YES
2=NO

8= DON'T KNOW (DO NOT PROBE)
9=NA/REFUSED

V5 Q6

Q 26. "Are you or any of your children of Appalachian Descent?"

[INTERVIEWER NOTE: IF ASKED – "Appalachian Descent is defined as being Direct descendants or living in Appalachia or the eastern mountainous region spanning from Alabama to Pennsylvania]

1=YES
2=NO

8= DON'T KNOW (DO NOT PROBE)
9=NA/REFUSED

(IF YES)
V5 Q6
Q 27. "Is that you, [CHILD] or both you and [CHILD]?"

1=RESPONDENT ONLY
2=CHILD ONLY
3=CHILD AND RESPONDENT

8= DON'T KNOW (DO NOT PROBE)
9=NA/REFUSED

V5 Q11

Q 28. "Does [CHILD] have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare or Medicaid?"

1. YES
2. NO

8. DON'T KNOW **(PROBE: REREAD QUESTION)**
9. NA/REFUSED

V5 Q11

(IF YES)

Q 29. "Is [CHILD] covered by Medicaid, the State of Ohio government health care program?"

1. YES
2. NO

8. DON'T KNOW **(PROBE: REREAD QUESTION)**
9. NA/REFUSED

V5 Q10

Q 30. "How much <u>total</u> income did you and your family receive in 2020, not just from wages or salaries but from <u>all</u> sources -- that is, before taxes and other deductions were made? I will read some categories please stop me when I get to yours . . . (READ CATEGORIES)

01. Less than $10,000
02. $10,000 - 14,999
03. $15,000 - 24,999
04. $25,000 - 34,999
05. $35,000 - 49,999
06. $50,000 - 74,999
07. $75,000 - 99,999
08. $100,000 - 149,999
09. $150,000 - 199,999
10. $200,000 or more."

97. REFUSED
98. DON'T KNOW (PROBE: "Approximately . . .")
99. NA

NOTE: Income sources to be included:

1. Wages & Salaries	4. Social Sec.	7. Unemployment Compensation
2. Interest on Savings	5. Pensions	8. Alimony
3. Dividends	6. Welfare	9. Child Support

(IPR STANDARD WEIGHTING VARIABLE)

"The next questions are for census purposes only . . . "

Q 31. "Could you please tell me your current address? We use this information to place your household into a specific census tract in your area. This way all areas of your county are equally represented."

(PLEASE ENTER STREET NUMBER, STREET NAME AND STREET TYPE)

_____ _____

STREET # STREET NAME

(IF RESPONDENT IS HESITANT, PROBE FOR THE NAME OF THEIR STREET AND NEAREST CROSS-STREET)
(PLEASE ENTER STREET NUMBER, STREET NAME, AND STREET TYPE)
(E.G. '123 SQUARE AVENUE' OR 'SQUARE AVENUE AND CLIFTON STREET')
(DO NOT ENTER ANY PUNCTUATION OR COMMENTS)
(IF THE RESPONDENT REFUSES TO GIVE THEIR ADDRESS OR CROSS-STREETS—TYPE 'REF' IN THE BOX BELOW AND ATTEMPT TO GET THE CITY AND ZIP CODE IN THE FOLLOWING QUESTIONS!)
(IPR STANDARD WEIGHTING VARIABLE)

Q 32. "Could you please tell me the city in which you currently live?"
(PLEASE ENTER CITY NAME)

_____

CITY NAME

98. DON'T KNOW
99. NA/REFUSED

IPR STANDARD WEIGHTING VARIABLE)

Q 33. "Could you please tell me your current zip code?"
(PLEASE ENTER ZIP CODE)

99998. DON'T KNOW
99999. REFUSED

(IPR STANDARD WEIGHTING VARIABLE)
Q 34. Circle SEX of Respondent

1. MALE
2. FEMALE

9. NA