



Research Article

Parent Experiences Using a Mindfulness App for Mental Health Wellbeing

Michael D. Aldridge^{1*}, Cara Gallegos², Matthew Bailey²

¹School of Nursing, University of Northern Colorado, Greeley, Colorado, USA

²School of Nursing, Boise State University, Idaho, USA

*Correspondence to: Michael D. Aldridge, PhD, RN, CNE, Professor of Nursing, School of Nursing, University of Northern Colorado, Campus Box 125, Greeley, Colorado, 80639, USA; Email: michael.aldridge@unco.edu

Received: January 7, 2025 Revised: March 22, 2025 Accepted: March 26, 2025 Published: April 27, 2025

Abstract

Objective: The purpose of this exploratory descriptive study was to describe parents' experiences using the mobile application (App) Headspace.

Methods: This descriptive qualitative study was a part of a larger study that examined the mental health effects of mindfulness on caregivers of a child with medical complexity. Caregivers who participated in the four week mindfulness study could volunteer for an interview conducted over Zoom. Focused questions about the utility of the app, barriers to use, factors facilitating use, and perceptions about the app were asked. Interviews were transcribed, coded for themes, and validated with participants via member checking.

Results: Three themes emerged. First, breathing exercises in the mindfulness App were seen as the most helpful feature in the App. Second, participants were overwhelmed with the vast number of choices the App gave them. Third, participants reported that their lives were already very busy managing the care of their child(ren), so finding time to use the App and engage in self-care was a challenge.

Conclusion: Mindfulness may be an intervention that works well with some parents. The ease of apps has increased the availability of mindfulness sessions for parents who may be unable to physically go to a session or cannot afford counseling, but some barriers to full use exist. Simpler App design may better meet the needs of these parents. It is important for pediatric healthcare providers to offer and encourage resources that are cost effective and flexible to use. By better understanding parent experiences using the App, healthcare providers may be able to assist parents in overcoming barriers to using this resource.

Keywords: qualitative research, mindfulness, mobile applications, children, chronic illness

Citation: Aldridge M, Gallegos C, Bailey M. Parent Experiences Using a Mindfulness App for Mental Health Wellbeing. *J Mod Nurs Pract Res*, 2025; 5(2): 4. DOI: 10.53964/jmnpr.2025004.

1 INTRODUCTION

Nearly 20% of children in the United States, a total of 13.6 million, are children with special health care

needs (CSHCN)^[1]. CSHCN are those who have, or are at increased risk for, a chronic physical, developmental, behavioral, or emotional condition that requires health and

related services of a type or amount beyond that required by children generally^[2]. Children with a medical complexity (CMC) are considered a subgroup of CSHCN and although a standard definition of medical complexity does not exist, four domains characterize CMC: 1) chronic, severe health conditions; 2) substantial health service needs; 3) major functional limitations; and 4) high health resource utilization^[3]. Data suggest that up to 11.4% of the pediatric population experience a medical complexity^[4-6].

Parents of CMC experience several challenges related to caregiving. In addition to typical caregiver tasks, they may experience added stress related to illness management, numerous healthcare and therapy appointments, uncertainty of the child's condition, financial strain, time conflicts, and guilt^[7]. Parents and caregivers of CMC may experience increased anxiety and stress compared to parents of healthy children, negatively impacting their mental, emotional, and physical health.

Numerous studies suggest that these parents experience high stress scores compared to parents of healthy children^[8-10]. The causes of increased stress vary but common reasons are financial concerns, illness management, care coordination, constant decision making, and the long term outlook for their child's health^[7,11-13]. Parents also experience long-term stress because they are expected to continue a high level of caregiving throughout their child's life. They may experience prolonged periods of neglecting their own physical health due to family and household obligations that can lead to anorexia and worsening mental health^[12,14]. Negative outcomes such as depression and post-traumatic stress disorder are correlated with chronic long-term stress and anxiety^[15-17].

A 2022 study of parents of CMC found that 60% of participants met the criteria for moderate to severe depression on Beck's Depression Inventory^[18]. Past studies indicate that maternal depression affects the health status of not only children with medical complexity^[19,20], but also can result in emotional and behavioral problems, cognitive and academic challenges, social and interpersonal difficulties, attachment issues, physical health problems, developmental delays, and increased risk of depression for healthy children^[21-23].

The lack of parental mental health support was identified as a key concern in a study conducted by Dewan^[24], which acknowledged the integrated nature of parental mental health and child well-being. Improving parental mental health can improve health outcomes and quality of life for CMC. Maternal depression has been associated with multiple issues in their children, including emotional and behavioral problems, cognitive and academic challenges, social and interpersonal difficulties, attachment issues, physical health problems, developmental delays, and

increased risk of childhood depression^[21-23]. These parents may neglect their own mental or physical health because they are worried about appearing vulnerable or unable to care for their children if they express mental health concerns to health care providers^[25].

1.1 Mindfulness and Interventions to Reduce Stress

There is a growing body of evidence on interventions for parents of CSHCN; however, the majority of studies are limited to children with developmental disabilities and the findings are inconsistent. Mindfulness-based stress reduction programs for parents of children with developmental delays have been found to be effective on stress and depression along with an increased satisfaction with life^[26]. In addition, Sohmaran and Shorey^[27] found that psychological interventions, such as cognitive behavioral therapy (CBT), mindfulness, behavioral parent training, Stepping Stones Triple P, and psychoeducation reduce parental stress, anxiety and depression, although the findings were inconsistent. In their meta-analysis of 11 studies, they found that although psychological interventions significantly reduced parental stress at the immediate post-intervention time point, results were not sustained at 3 to 6 months post-intervention.

It is more challenging to find evidence regarding effective interventions for parents of a child with medical complexity. A variety of interventions have been implemented and research evidence has found that support from outside of the immediate family, such as home health nurses, is the most helpful form of support when available^[28]. Parents prefer strategies that add additional value beyond being asked to complete another task or schedule an event, as these may evolve into another source of stress. Developing daily life habits such as positive self-talk, practicing self-care, and flexible scheduling allowing parents a respite are effective techniques^[28].

Resourcefulness Training, comprised of teaching about help-seeking and self-help skills, resulted in decreased depressive cognitions and increased physical health in parents of technology dependent children over a 6-month period, however, the effect on family functioning was not statistically significant^[29]. In addition to the common barriers (high costs, low supply and availability of clinicians, stigma, and preferences for self-help) for seeking mental health care, parents also face additional barriers related to time, child care, and transportation^[30].

Mindfulness refers to a state of consciousness that focuses on an individual's attention and awareness in the present, and is a popular practice aimed at improving mental health. In the general population, mindfulness has been associated with a decrease in depressive symptoms, stress, and anxiety^[31,32]. Mobile applications (Apps) for smartphones present an opportunity to overcome barriers

associated with typical mindfulness meditation programs^[33]. Among the mindfulness apps, *Calm* and *Headspace* are the most popular and consistently rank the highest in the number of downloads and user activity^[34]. Research evidence supports the feasibility, acceptability and usability of mindfulness apps in students^[32] and parents of children with chronic pain^[35].

Recently, a pilot study^[36] of 28 parents of a CMC examined the effect of using a mindfulness App on depression and family management. The majority of parents found the App easy to use, 32% used the App 4 days a week, and 50% used it for at least 10 minutes/session. Post-intervention there was statistically significant improvement in both depression severity and family management scores. However, given the demands placed on these parents, it is important to also understand the experience of parents who are using the App.

Therefore, the purpose of this exploratory descriptive study was to describe parents' experiences using the mobile App Headspace. The consolidated Criteria for Reporting Qualitative studies checklist^[37] was used to guide the design of this study and report the findings.

2 METHODS

2.1 Research Team and Reflexivity

One member of the research team experienced in qualitative methodology and interviewing conducted the individual interviews, and other members of the research team transcribed, validated, and analyzed that data. The interviewer was a PhD-educated male nurse educator who had no prior relationship with the participants prior to conducting the interviews. Two members of the research team were experienced pediatric nurses who have cared for children and families with medical complexity in multiple healthcare settings.

2.2 Design

A qualitative exploratory descriptive approach was used to answer the research question. Qualitative descriptive research involves the use of interpretive methods where the researcher studies people in their natural setting to interpret a phenomenon of interest^[38]. Neergaard et al.^[39] differentiated qualitative descriptive methods from phenomenology. In descriptive research there is less focus on interpreting meaning from the lived experiences of participants; instead, the goal is to understand and describe what those experiences might be.

2.3 Sampling and Participants

The participants in this study were part of a larger single arm intervention pilot study that explored whether use of a mindfulness mobile App for 10-15 minutes, four days a week for four weeks, affected depression and family management^[36]. Participant parents in the larger study were

recruited from a large children's hospital ambulatory clinic in the Northwestern United States that serves as the primary clinical site for pediatric subspecialty care in the state. The inclusion criteria for participants: 1) 18 years or older, 2) Parent caregiver (biological, adoptive, or foster mother, father, or relative providing care) of a CMC, 3) Daily access to a mobile device, and 4) Able to read and understand English. Recruitment and data collection began in January 2023 and concluded in October 2023.

The 28 participants who completed the larger study^[36] were asked in the questionnaire if they would be willing to participate in an interview to more fully understand their experiences using the App. Those expressing interest were contacted via email, consented to the interview, and an interview time was arranged. Five women, all mothers of CMC, participated in the study and all completed the interviews. Four of the participants did not work outside the home, two of the participants had multiple children with CMC in the family, and the average family size was five people.

2.4 Setting

The interview was conducted via Zoom at a time that was arranged by the participants. All of the participants opted to be in their home during the interview, and all had made arrangements for someone else to have primary care-taking responsibility for their child(ren) during the interview. No one else was present during the interviews.

2.5 Data Collection

An interview guide (see Table 1), based on the extant literature, was developed to guide the semi-structured interviews. Interviews were recorded on Zoom and then transcribed and validated verbatim. Contextual features from the video recording, such as gestures, crying, and long pauses, were added to the transcript prior to analysis. Pseudonyms were used in place of actual names, and participants' locations were anonymized.

Interviews lasted 45 to 60 minutes and repeat interviews were not conducted. The research team believed that data saturation was reached, which is consistent with recent viewpoints about data saturation claiming that little new information is gained after five to seven interviews^[40]. Furthermore, participants in this qualitative study had to have participated in the parent study (n=28). Efforts to recruit additional participants into this qualitative study were not fruitful.

2.6 Data Analysis

All three researchers participated in data analysis by independently coding the data for thematic analysis^[41] and then met regularly to discuss coding and refine the themes. All themes identified were derived from the data, and coding and analysis were done manually.

Table 1. Interview Questions

Interview Questions	
Can you tell me about your family?	What way does your family support your life and routine at home?
Do you work outside the home?	Can you tell me about your child or children?
What ways were you prepared as a parent to have a child with complex medical conditions?	Where do you turn to for emotional or physical support?
Can you tell me about your experience using the App?	What functions did you use in the App?
Were there any functions of the App you didn't use?	What made using the App either difficult or challenging?
Did anyone else in your family use the App?	Did you have any technical difficulties?
If you were talking to other parents, what would you say about the App?	If you had to pay for the App, is this something you would continue to do?
Is there anything else you think we should know about the App?	Tell me what you think about when you think about the future of your family?

According to Braun and Clarke^[41], thematic analysis involves six major steps: 1. Becoming familiar with the data (transcription, reading, re-reading, and initial ideas); 2. Generating initial codes (coding interesting features of the data set); 3. Searching for themes (collating codes into potential themes); 4. Reviewing themes (checking if themes work in relation to the data set); 5. Defining and naming themes (refining and defining each theme); 6. Reporting (selecting vivid quotations that illustrate each theme). Neergaard et al.^[39] also explained that researcher(s) using qualitative descriptive design when analyzing and summarizing findings “stay closer to the data” (p.2) by providing a rich description in the voices of the participants.

In this study 37 codes were identified during initial analysis and were collapsed into three themes, which were all derived from the data. Member checking was done and all participants indicated the themes accurately captured their experiences of using the mindfulness App.

2.7 Measures to Enhance Trustworthiness

In qualitative research, trustworthiness is comprised of four elements: credibility, transferability, dependability, and confirmability^[37]. The researchers used several strategies to enhance the overall trustworthiness of the study findings. Credibility, which refers to how much confidence the researcher has in the truth of the findings, was enhanced by asking open-ended questions, evaluating the interviews to improve interviewing skills, and performing member checking. Transferability, which asks whether the findings can be applied to other contexts and settings, was enhanced by having “thick,” detailed descriptions of the participants’ experiences during the interview. Dependability, which deals with whether the findings can be repeated in another group, was enhanced by keeping an audit trail during the study. Confirmability, which asks whether the data are internally coherent, was also enhanced by keeping an audit trail during the study and with member checking.

3 RESULTS

Three main themes were identified and are presented below.

3.1 Theme One: Breathing Exercises Most Helpful

A strong theme in this study emerged as participants described the part of the App that they found most helpful to use on a regular basis. Breathing exercises were seen as easy to understand, incorporate into their routine, and were calming. As participant one said, “I really like the graphics on the breathing exercises...because they were different every day...they grounded me...it just kind of lowered my heart rate and...made me think about something else.” Participant four specifically described how the visuals in the App facilitated deep breathing: “They would start with a breathing...visual, like a bubble blowing up, or the sun expanding and contracting.” Participant two connected the deep breathing exercises to a physiological response, noting, “the breathing stuff is super helpful, as I’ve learned, that your breathing is your first cue to your body whether you’re safe or not, and so they send you into fight or flight.” All of the participants described the breathing exercises in the App as helpful in some way.

3.2 Theme Two: The “Cheesecake Factory” Approach is Overwhelming

The Cheesecake Factory® is an American restaurant known for its expansive menu. According to their website, the menu is 21 pages long and contains approximately 250 items that guests can choose from^[42]. Participants in this study compared the App’s vast menu of options to The Cheesecake Factory’s food menu, describing how multiple options became overwhelming for them. As participant three noted, “It’s easy to get overwhelmed when you have too many choices. It’s like the Cheesecake Factory of mindfulness...simple is better sometimes, especially when you’re seeking something to calm your brain...too many options is overwhelming.”

Participant two made the same reference in this part of the interview:

Participant: But again, it’s choices. It’s like, I don’t know, if you have ever been to the Cheesecake Factory, their menu...like, it’s debilitatingly huge.

Researcher: It’s very big, yes.

Participant: So obviously Headspace [the App] isn't that big, but just like I said, there's just too many things coming at me when I open it."

Most participants described the App as having too many choices and felt that a simple layout and menu would be beneficial to facilitate consistent use.

3.3 Theme Three: The Plate is Full

The last theme described how their lives were already very busy with managing the complex care of their child(ren), which left little time for self-care. Finding even a few minutes a day to use the App was challenging for these mothers. Some participants doubted they would have used the App beyond the time they committed to use it during the study. As Participant five said, "I felt like I had to do it [use the App], because it was...ten minutes a day, and that's not really a bad time. It's just my life is so fast sometimes." Participant three had a similar feeling, stating, "It's hard to be like, 'Hey guys, I need 10 or 20 minutes...it's hard to find just 10 minutes where I can be like, hey, nobody bother me.'"

4 DISCUSSION

Parents of CMC need simple and accessible interventions to improve mental health. Quantitative studies in different populations on mobile mindfulness apps have consistently found statistically significant benefits to using a mindfulness App. In addition, it is important to note that the results of the larger study of parents of CMC did find a significant decrease in depression and improvement in family management^[36].

However, as the current study might suggest, there may be some negative effects of frequent mindfulness App use. There is emerging evidence that the way mindfulness App usage is recommended may, in fact, be harmful. Daily mindfulness practice has been recommended by experts^[43,44] as well as by App developers, such as *Headspace* and *Calm*. However, there is little empirical use that daily use is more beneficial than intermittent use^[45]. In a mixed method study examining the effects of a mindfulness App (*Calm*), Clark and Draper^[45] found that when categorized by use (minimum engagement, medium engagement, and maximum engagement), all groups received benefit. However, in their qualitative analysis, they found that there may be some negative effects of frequent use, such as lowered self-efficacy and an increase in anxiety. Other qualitative researchers have also found that mindfulness can result in decreased mental health related to participants being unable to manage negative thoughts that arose during meditation^[46,47]. These findings, along with the themes identified in this study, revealed some of the challenges mothers experienced when using a mindfulness App.

4.1 Themes One and Two: App Design is Important

Taken together, themes one and two identified that the design of the App needs to be simple and easy to navigate, with an emphasis on breathing exercises. Participants

found some elements of the App difficult to navigate and identified that the breathing exercises were easy to do, the visuals in the App enhanced deep breathing, and gave them the benefit of relaxation.

Mobile Apps are increasingly seen by users as a cost-effective and accessible way of improving mental health either on their own or to supplement traditional therapies. It is important for nurses to have a baseline understanding of apps available to better connect with their patients. This study focused on the *Headspace* App, a determination made based on the researchers' knowledge of the App, accessibility, and the focus on mindfulness and mediation as a method of reducing stress and anxiety. The *Headspace* design of self-guided programs is one of many available to users. Table 2 describes Headspace and four additional apps while highlighting the diverse options available.

In the literature and marketing of some of these apps, one of the benefits listed is a large library of options for use. However, participants in this study were overwhelmed with the vast number of options and chose to focus primarily on the breathing exercises, which were seen as easy to understand and were helpful for them. Adaptive App designs, or guidance from providers about how to navigate the App, may facilitate usage in this group of parents.

4.2 Theme Three: Self Care is Challenging for Mothers with CMC

This theme found that mothers in this study had challenges taking the time to use the mindfulness App. In addition to typical caregiver tasks, parents of a CMC are expected to manage the constant health challenges that their child may experience. They experience added stress related to illness management, numerous healthcare and therapy appointments, uncertainty of the child's condition, financial strain, time conflicts, and guilt^[7]. Often their days are spent either caring for their child or advocating for their child's care.

Researchers have found that mothers of a CMC experience significant disruptions in employment. Kuo and colleagues estimated that a family member in 54% of families of a CMC stopped working and 46% reported having reduced working hours due to the child's health^[48].

In addition to employment disruptions, the actual time that mothers spend caring for their child is significant, particularly on weekends. There is little current information documenting the time mothers spend providing medical care for their child. Older studies found that mothers spent seven to eight hours per day providing care, which included technical care (diagnostic procedures, medication administration, etc.), non-technical care (bathing, feeding, etc.), and healthcare management (arranging care, managing finances and insurance, etc.)^[49,50]. A newer study^[48] found

Table 2. Selection of Available Mental Health Apps

Name	Type	Cost (U.S. Dollars as of 2025)	Focus and Features
Headspace	Meditation and mindfulness	\$70 annual	Self-guided programs focused on mindfulness and meditation About 500 programs available
Mindshift CBT	Cognitive Behavioral Therapy programs	Free	CBT techniques introduced through step-by-step instructions
Health Minds Program App	Meditation and mindfulness	Free	Short lessons designed to improve users' relationship with themselves through education About 200 programs
Happify	Stress reduction and cognitive techniques to reduce anxiety	\$140 annual	User specific "tracks" including improved sleep, reduced stress through lessons, games, and real-world activities About 3000 activities, about 300 guided meditations
Calm	Meditation, sleep, and relaxation App	\$70 annual	Activities focused on meditation, improved sleep, and relaxation About 700 programs

that caregivers reported spending two hours per week arranging or coordinating the child's care and 11 to 20 hours per week providing health care at home to the child. These time constraints clearly limit not only availability to work but time to use technologies and engage in self-care.

Self-care in this population is underresearched; however, there is a growing body of literature that discusses the poor health status of these parents. A systematic review^[51], found that 84% of parents of a CMC experience negative impacts to their health. In the review, researchers found these parents experience pain arising from caregiving and sleep disturbance, which is caused by a range of issues such as the child's nighttime seizures, abnormal sleep patterns, and the need for nighttime care.

While not the primary focus of this study, during the interviews participants often shared their experiences about the stress inherent in caring for a child with CMC and the unpredictability that comes with having a child with CMC. These issues have been well described in the literature for over 25 years. In a classic study^[52], families with technology-dependent children compared their experience to "living in a house of cards," noting themes like frequent change, uncertainty, and unpredictability in their lives. They dealt with these challenges by being vigilant and by advocating for their child. Nearly identical findings from a study just published^[53] demonstrate that these issues have persisted among parents of CMC for at least two decades now, so it is not surprising that mothers in this study also spoke about similar challenges.

Several participants in this study also described continued challenges with obtaining care since the pandemic and reflected about how difficult things were during the pandemic. It became clear from these discussions that several years later these mothers are still processing their experiences from caring for a child with CMC during

the pandemic. Previous studies have found that parents of CMC experienced increased stress during the COVID pandemic related to isolation, lack of resources, and concern for the mental health of themselves and their children^[8,54]. This finding indicates that providers must continue to assess mental health status and emphasize self-care and coping strategies among these families.

4.3 Implications for Nurses

When working with families of CMC, it is important to first understand that all parents will have different ways of coping, and mindfulness might not be the preferred method. Second, although the App designers typically recommend at least four days per week of App usage, there is some emerging preliminary evidence that suggests the number of days may not make a difference^[36], and sometimes more usage may be harmful^[45-47]. One important take-away from this study is that there are significant differences in the way that people successfully engage with mindfulness practice. A thematic analysis of 106 mental health App reviews found that many users preferred more variety and a high number of options or features^[55]. This preference does not align with the findings of this study, but Alqahatani and Orji^[55] also noted that customization to remove unwanted content or better tailor content to the users' needs was important, which may be a reason for the discrepancy.

Psychologists conducting mental health App data analysis note the most engaging apps were designed by industry teams funded by private capital rather than academic teams^[56]. Nurses should offer a variety of interventions to help support parents, including mindfulness apps. However, they should be aware that there are many different mindfulness apps available and be able to educate patients on the retention, usage, and engagement goals of many mental health App developers. App usage that is beneficial for the person should be encouraged rather than a prescribed number of days^[45].

4.4 Limitations and Suggestions for Future Research

The findings of this study do have some limitations. Since only English-speaking mothers volunteered to participate, the views of fathers, other caregivers, and non-English speaking families were not captured. Findings from this study may not be transferable to other settings. Since participants volunteered for this study, those who did not volunteer may have had different experiences that were not captured in this study's findings.

There are opportunities for future research to build on the findings from this study. Studies about self-care in this population are scarce and are mostly focused around health related quality of life. Given the findings from this study, it would also be useful to know if using a simpler mindfulness App is effective. In addition, although a few fathers participated in the larger quantitative study, it is important to purposively recruit a more diverse sample to understand how fathers and other caregivers perform self-care. By incorporating a stress-coping model or a mixed methods design, researchers may have a more robust understanding of self-care in this group. Finally, the “dose” of mindfulness needed to improve mental health symptoms also needs further study.

5 CONCLUSION

This study provides a further glimpse into the lives of a parent of a CMC. For nearly 25 years the literature has described that families of CMC often struggle with mental health issues and experience high rates of depression and anxiety. However, research on cost-effective, accessible interventions is less common. Nurse researchers and clinicians must continue to investigate which interventions are most helpful among this population in order to provide optimal support for these families.

Acknowledgements

This project is supported by an award from the National Institute of General Medical Sciences, National Institutes of Health Mountain West Clinical & Translational Research Infrastructure Network Program (No. U54 GM10494).

Ethical Statement

Not applicable.

Conflicts of Interest

The authors declared no conflict of interest.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Copyright Permissions

Copyright © 2025 The Author(s). Published by Innovation Forever Publishing Group Limited. This open-access article

is licensed under a Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, sharing, adaptation, distribution, and reproduction in any medium, provided the original work is properly cited.

Author Contribution

Aldridge M conducted the qualitative interviews, analyzed the data, and wrote the manuscript. Gallegos C conceived the study design, analyzed the data, and wrote the manuscript. Bailey M transcribed and analyzed the data and wrote the manuscript.

Abbreviation List

App, Application

BPT, Behavioral parent training

CBT, Cognitive behavioral therapy

CMC, Children with medical complexity

CSHCN, Children with special healthcare needs

References

- [1] US Department of Health and Human Services. Children and Youth with Special Health Care Needs. Accessed March 21 2025. Available at:[\[Web\]](#)
- [2] McPherson AC, McAdam L, Keenan S et al. A feasibility study using solution-focused coaching for health promotion in children and young people with Duchenne muscular dystrophy. *Dev Neurorehabil*, 2018; 21: 121-130.[\[DOI\]](#)
- [3] Cohen E, Kuo DZ, Agrawal R et al. Children With Medical Complexity: An Emerging Population for Clinical and Research Initiatives. *Pediatrics*, 2011; 127: 529-538.[\[DOI\]](#)
- [4] Cohen E, Berry JG, Camacho X et al. Patterns and Costs of Health Care Use of Children With Medical Complexity. *Pediatrics*, 2012; 130: e1463-e1470.[\[DOI\]](#)
- [5] Leyenaar JK, Schaefer AP, Freyleue SD et al. Prevalence of Children With Medical Complexity and Associations With Health Care Utilization and In-Hospital Mortality. *JAMA Pediatr*, 2022; 176: e220687.[\[DOI\]](#)
- [6] Yu JA, McKernan G, Hagerman T et al. Identifying Children With Medical Complexity From the National Survey of Children's Health Combined 2016–17 Data Set. *Hosp Pediatr*, 2021; 11: 192-197.[\[DOI\]](#)
- [7] Golfenshtein N, Srulovici E, Medoff-Cooper B. Investigating Parenting Stress Across Pediatric Health Conditions - A Systematic Review. *Compr Child Adolesc Nurs*, 2016; 39: 41-79.[\[DOI\]](#)
- [8] Gallegos C, Aldridge MD, Connor K et al. Parenting a child with a chronic illness during a pandemic. *J Pediatr Nurs*, 2022; 66: 64-69.[\[DOI\]](#)
- [9] Gannoni AF, Shute RH. Parental and child perspectives on adaptation to childhood chronic illness: A qualitative study. *Clin Child Psychol Psychiatry*, 2010; 15: 39-53.[\[DOI\]](#)
- [10] Pinquart M. Parenting stress in caregivers of children with chronic physical condition—A meta-analysis. *Stress Health*, 2018; 34: 197-207.[\[DOI\]](#)
- [11] Bogetz JF, Trowbridge A, Lewis H et al. Parents Are the

- Experts: A Qualitative Study of the Experiences of Parents of Children With Severe Neurological Impairment During Decision-Making. *J Pain Symptom Manage*, 2021; 62: 1117-1125.[\[DOI\]](#)
- [12] Jensen MP, Liljenquist KS, Bocell F et al. Life impact of caregiving for severe childhood epilepsy: Results of expert panels and caregiver focus groups. *Epilepsy Behav*, 2017; 74: 135-143.[\[DOI\]](#)
- [13] John Cherian D, Ta D, Smith J et al. How Families Manage the Complex Medical Needs of Their Children with MECP2 Duplication Syndrome. *Children*, 2023; 10: 1202.[\[DOI\]](#)
- [14] Foster CC, Shaunfield S, Black LE et al. Improving Support for Care at Home: Parental Needs and Preferences When Caring for Children with Medical Complexity. *J Pediatr Health Care*, 2022; 36: 154-164.[\[DOI\]](#)
- [15] Bayer ND, Wang H, Yu JA et al. A National Mental Health Profile of Parents of Children With Medical Complexity. *Pediatrics*, 2021; 148: e2020023358.[\[DOI\]](#)
- [16] Casaña-Granell S, Lacomba-Trejo L, Valero-Moreno S et al. A brief version of the Pediatric Inventory for Parents (PIP) in Spanish population: Stress of main family carers of chronic paediatric patients. *PLoS One*, 2018; 13: e0201390.[\[DOI\]](#)
- [17] Cohn LN, Pechlivanoglou P, Lee Y et al. Health Outcomes of Parents of Children with Chronic Illness: A Systematic Review and Meta-Analysis. *J Pediatr*, 2020; 218: 166-177. e2.[\[DOI\]](#)
- [18] Gallegos C, Zuba L. Measuring Depression and Quality of Life in Parents of Chronically Ill Children. *Pediatr Nurs*, 2024; 50: 249-253.[\[DOI\]](#)
- [19] Luo D, Wang Y, Cai X et al. Resilience Among Parents of Adolescents With Type 1 Diabetes: Associated With Fewer Parental Depressive Symptoms and Better Pediatric Glycemic Control. *Front Psychiatry*, 2022; 13: 834398.[\[DOI\]](#)
- [20] Tully C, Rose M, Breen S et al. Relationship between parent mood and resilience and child health outcomes in pediatric asthma. *Fam Syst Health*, 2019; 37: 167-172.[\[DOI\]](#)
- [21] Aoyagi SS, Tsuchiya KJ. Does maternal postpartum depression affect children's developmental outcomes? *Obstet Gynecol Res*, 2019; 45: 1809-1820.[\[DOI\]](#)
- [22] Urizar GG, Muñoz RF. Role of Maternal Depression on Child Development: A Prospective Analysis from Pregnancy to Early Childhood. *Child Psychiatry Hum Dev*, 2022; 53: 502-514.[\[DOI\]](#)
- [23] Woolhouse H, Gartland D, Mensah F et al. Maternal depression from pregnancy to 4 years postpartum and emotional/behavioural difficulties in children: Results from a prospective pregnancy cohort study. *Arch Womens Ment Health*, 2016; 19: 141-151.[\[DOI\]](#)
- [24] Dewan T, Birnie K, Drury J et al. Experiences of medical traumatic stress in parents of children with medical complexity. *Child Care Health Dev*, 2023; 49: 292-303.[\[DOI\]](#)
- [25] Pickles DM, Lihn SL, Boat TF et al. A Roadmap to Emotional Health for Children and Families With Chronic Pediatric Conditions. *Pediatrics*, 2020; 145: e20191324.[\[DOI\]](#)
- [26] Neece CL. Mindfulness-Based Stress Reduction for Parents of Young Children with Developmental Delays: Implications for Parental Mental Health and Child Behavior Problems. *J Appl Res Intellect Disabil*, 2014; 27: 174-186.[\[DOI\]](#)
- [27] Sohmaran C, Shorey S. Psychological interventions in reducing stress, depression and anxiety among parents of children and adolescents with developmental disabilities: A systematic review and meta-analysis. *J Adv Nurs*, 2019; 75: 3316-3330.[\[DOI\]](#)
- [28] Toly VB, Blanchette JE, Musil CM. Mothers caring for technology-dependent children at home: What is most helpful and least helpful? *Appl Nurs Res*, 2019; 46: 24-27.[\[DOI\]](#)
- [29] Toly VB, Zauszniewski JA, Yu J et al. Resourcefulness Intervention Efficacy for Parent Caregivers of Technology-Dependent Children: A Randomized Trial. *West J Nurs Res*, 2022; 44: 296-306.[\[DOI\]](#)
- [30] Andrade LH, Alonso J, Mneimneh Z et al. Barriers to mental health treatment: Results from the WHO world mental health surveys. *Psychol Med*, 2014; 44: 1303-1317.[\[DOI\]](#)
- [31] Firth J, Torous J, Nicholas J et al. Can smartphone mental health interventions reduce symptoms of anxiety? A meta-analysis of randomized controlled trials. *J Affect Disord*, 2017; 218:15-22.[\[DOI\]](#)
- [32] Huberty J, Green J, Glissmann C et al. Efficacy of the Mindfulness Meditation Mobile App "Calm" to Reduce Stress Among College Students: Randomized Controlled Trial. *JMIR Mhealth Uhealth*, 2019; 7: e14273.[\[DOI\]](#)
- [33] Cavanagh M, Buckley A. Coaching and mental health. In: The Complete Handbook of Coaching, Sage Publications: Los Angeles, California, 2014; 405-417.
- [34] Lau N, O'Daffer A, Colt S et al. Android and iPhone Mobile Apps for Psychosocial Wellness and Stress Management: Systematic Search in App Stores and Literature Review. *JMIR Mhealth Uhealth*, 2020; 8: e17798.[\[DOI\]](#)
- [35] Seidman LC, Martin SR, Trant MW et al. Feasibility and Acceptance Testing of a Mobile Application Providing Psychosocial Support for Parents of Children and Adolescents With Chronic Pain: Results of a Nonrandomized Trial. *J Pediatr Psychol*, 2019; 44: 645-655.[\[DOI\]](#)
- [36] Gallegos C, Toly V, Bailey M. Mindfulness apps to improve depression severity and family management in parents of children with medical complexity: A pilot study. *J Specialists Pediatr Nurs*, 2025, under review.
- [37] Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative Research (COREQ): A 32-item checklist for interviews and focus groups. *Int J Qual Health Care*, 2007; 19: 349-357.[\[DOI\]](#)
- [38] Bloomberg LD, Volpe M. Completing your Qualitative Dissertation: A Road Map from Beginning to End, 4th ed. Sage Publications: Los Angeles, California, 2019.
- [39] Neergaard MA, Olesen F, Andersen RS et al. Qualitative description: The poor cousin of health research? *BMC Med Res Method*, 2009; 9: 52.[\[DOI\]](#)
- [40] Guest G, Namey E, Chen M. A simple method to assess and report thematic saturation in qualitative research. *PLoS One*, 2020; 15: e0232076.[\[DOI\]](#)
- [41] Braun V, Clarke V. Using thematic analysis in psychology.

- Qual Res Psychol*, 2006; 3: 77-101.
- [42] Cheesecake Factory Menu. Accessed 21 March 2025. Available at:[\[Web\]](#)
- [43] Kabat-Zinn J, Hanh TN. Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness. Bantam Publishing, New York, New York, 2013.
- [44] Parsons CE, Crane C, Parsons LJ et al. Home practice in mindfulness-based cognitive therapy and mindfulness-based stress reduction: A systematic review and meta-analysis of participants' mindfulness practice and its association with outcomes. *Behav Res Ther*, 2017; 95: 29-41.[\[DOI\]](#)
- [45] Clarke J, Draper S. Intermittent mindfulness practice can be beneficial, and daily practice can be harmful. An in depth, mixed methods study of the “Calm” app's (mostly positive) effects. *Internet Interv*, 2020;19: 100293.[\[DOI\]](#)
- [46] Laurie J, Blandford A. Making time for mindfulness. *Int J Med Inform*, 2016; 96: 38-50.[\[DOI\]](#)
- [47] Lomas T, Cartwright T, Edginton T et al. A Qualitative Analysis of Experiential Challenges Associated with Meditation Practice. *Mindfulness*, 2015; 6: 848-860.[\[DOI\]](#)
- [48] Kuo DZ, Cohen E, Agrawal R et al. A National Profile of Caregiver Challenges Among More Medically Complex Children With Special Health Care Needs. *Arch Pediatr Adol Med*, 2011; 165: 1020-1026.[\[DOI\]](#)
- [49] Heyman MB, Harmatz P, Acree M et al. Economic and psychologic costs for maternal caregivers of gastrostomy-dependent children. *J Pediatr*, 2004; 145: 511-516.[\[DOI\]](#)
- [50] Leonard B, Brust JD, Sapienza JJ. Financial and time costs to parents of severely disabled children. *Public Health Rep*, 1992; 107: 302-312.
- [51] Hartley J, Bluebond-Langner M, Candy B et al. The Physical Health of Caregivers of Children With Life-Limiting Conditions: A Systematic Review. *Pediatrics*, 2021; 148: e2020014423.[\[DOI\]](#)
- [52] O'Brien ME. Living in a house of cards: Family experiences with long-term childhood technology dependence. *J Pediatr Nurs*, 2001; 16: 13-22.[\[DOI\]](#)
- [53] Boateng EA, Bisiw MB, Agyapomah R et al. A qualitative study on the experiences of family caregivers of children with End Stage Kidney Disease (ESKD). *Biopsychosoc Med*, 2024; 18: 17.[\[DOI\]](#)
- [54] Connor K, Aldridge MD, Gallegos C. Understanding the Experience of Mothers of Medically Complex Children through Photojournaling. *J Mod Nurs Pract Res*, 2022; 2: 5.[\[DOI\]](#)
- [55] Alqahtani F, Orji R. Insights from user reviews to improve mental health apps. *Health Inform J*, 2020; 26: 2042-2066.[\[DOI\]](#)
- [56] Kaveladze BT, Wasil AR, Bunyi JB. User Experience, Engagement, and Popularity in Mental Health Apps: Secondary Analysis of App Analytics and Expert App Reviews. *JMIR Hum Factors*, 2022; 9: e30766.[\[DOI\]](#)