Contingent Parental Metamorphosis: A Grounded Theory of Parental Adaptation with Offspring-Affected Neurodevelopmental Disorders

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ABSTRACT

Objectives: The increasing rates of neurodevelopmental disorders (NDDs) such as autism spectrum disorder (ASD) or attention-deficit/hyperactivity disorder (ADHD) underscore the need to focus on how parents adopt strategies associated with these challenges.
Material & Methods: This study presents the “Contingent Parental Metamorphosis Theory” formulated through grounded theory methodology, focusing on the adaptive processes of 27 parents of children with NDDs. The participants were selected through theoretical sampling and purposive sampling. The data were obtained using interviews, observations, field notes, and memos. The information analysis was based on Corbin and Strauss’s 2015 approach, and the MAXQDA 2010 programwas utilized for information management.
Results: The data revealed 38 undercategories, 12 subcategories, and six major categories: (1) perceived parental crisis in the diagnostic-treatment process, (2) duality of parental grief, (3) hierarchical support, (4) organization of financial-motivational resources, (5) conscious parental strategies, and (6) commitment to parental adherence.
Conclusion: The findings indicate a theory of Contingent Parental Metamorphosis, elucidating how parents adjust to the challenges posed by their offspring’s conditions. This theory highlights the duality of parental grief, illustrating the complex emotional landscape parents navigate. The theory offers a multivariate framework capturing the dynamic nature of the adjustment process, encompassing both the stress and the fulfillment that parents experience, ultimately fostering a renewed sense of purpose.

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Introduction

Neurodevelopmental disorders (NDDs), including Motor disability (MD), learning disorders (LD), communication disorders (CD), autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), and intellectual disabilities (ID), are increasingly recognized for their significant forms of impairments to those affected and their families (1). The prevalence rates for various NDDs can fluctuate significantly across studies due to methodological differences, with estimates ranging from 4.70% to 88.50% depending on the context and population studied (2). A study in Kermanshah Province, Iran, found that 2.2% of children were diagnosed with NDDs, highlighting the need for targeted public health strategies (3). Children with NDDs, such as those with

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disabilities, often experience significant difficulties that can impact their overall development and well-being. For instance, children with ASD also face sleep disturbances, which can lead to further complications in their health and behavior (4).

Parents of these children often encounter their own set of challenges, including increased stress, mental health issues, and difficulties in managing their child's needs. Research indicates that parents may experience psychological distress, which can negatively influence their parenting practices and the overall family dynamic (5).

Thus, the importance of adaptation in this context cannot be overstated. Effective adaptation strategies can help both children and parents cope with their respective challenges, leading to improved family functioning and better outcomes for the child (6). The adaptation process among these parents can vary widely. Some parents develop flexible routines and coping mechanisms, which can enhance their quality of life and that of their children. Others may struggle with feelings of crisis and helplessness, which can hinder their ability to provide effective care. The concept of "sensemaking" is crucial here, as it refers to how parents interpret and manage their experiences, which can significantly influence their adaptation process (7).

Further research into parents' adaptation processes is critical. Understanding how parents cope with the challenges of raising children with NDDs can inform the development of targeted interventions and support systems. Studies have shown that family-centered practices and parental well-being are essential for improving outcomes for both children and their families (8). By focusing on the adaptation process, researchers can better address the needs of these families and enhance their overall quality of life.

Moreover, parental adaptation is closely linked to the psychosocial functioning of children with NDDs. The quality of parenting and the emotional well-being of parents can directly influence their children's developmental outcomes (9). This research can help elucidate these relationships, providing insights that benefit both parents and children.

How parents respond to the challenges of NDDs in their children is a complicated and multifaceted process. This study aims to offer a grounded theory explaining the methods the processes of action and/or inaction to develop strategies for parents when coping with the difficulty of raising children with NDDs. The grounded theory approach serves as a powerful lens for examining parents' lived experiences, including the identification of core categories and themes from the qualitative data. Emphasizing the importance of parents' subjective realities can guide the creation of interventions and support systems that more appropriately account for each parent's needs (10). By centering on adaptive processes and learning-oriented outcomes, this study aims to illuminate the strategies through which parents adapt to foster resilience and positive outcomes for their children with NDDs.

Material & Methods

Approach

The research design employed the Corbin and Strauss grounded theory format, with ethical approval obtained (IR.GOUMS.REC.1401.512). Corbin and Strauss explicitly defined grounded theory as "a method for developing theory that is grounded in systematically gathered and analyzed data" (11). The Corbin and Strauss format differs from original grounded theory, as it employs a more systematic coding scheme — open, axial, and selective coding — to develop a conceptual framework (12). Corbin and Strauss's approach is especially appropriate for examining intricate social processes because it facilitates systematic analysis of the interrelations between categories and subcategories. When choosing this approach, a review of various grounded theory methods was conducted. At last, this study selects Corbin and Strauss's (2015) grounded theory approach (11).

Research setting and participants

This study was conducted at the Deziani Growth and Development Clinic of the IR Iran Gorgan Branch, Iran. Initial participant selection followed qualitative research protocols, using purposive sampling with a maximum variation strategy to capture a wide range of perspectives. Later, a preliminary form of theoretical sampling was conducted through an iterative process in which analysis of previously collected data guided subsequent data collection to iteratively refine the emerging categories (13). The research population included 27 participants (14 mothers and 7 fathers) who met the criteria of providing informed consent and had a child with a confirmed diagnosis of NDDs by a psychiatrist. Overall, 29 interviews were conducted, including two follow-up interviews with participants. Reiterative interviewing is a recognized strength of grounded theory methodology and allows examination of developing theoretical constructs (14). The children in this study were aged 1.5-19 years. These children's challenges included ASD (5 children), ADHD (4 children), ID (5 children), LD (2 children), CD (2 children), and MD (3 children).

Data collection

To create a holistic understanding of the phenomenon, the current study used semi-structured interviews as its primary data collection method. Twenty-seven interviews were conducted with 14 mothers, seven fathers, as well as six individuals recruited through theoretical sampling. The interviews were initiated with a general, open-ended question: “How would you describe a normal day in your life with your child?”

During the interviews, the discussion was guided by participants’ responses in line with the study’s aims. Clarifying questions: “Can you give me an example of this? And “What is that supposed to mean?” —were applied to enrich and elucidate the narratives of the participants. In some cases, the same question was rearticulated to encourage reflection and obtain additional insights, thereby providing data with greater depth. The average time for a conventional interview was 70 minutes (though this varied depending on the individual). In an attempt to resolve uncertainties and confirm data saturation, two participants were re-interviewed, facilitating emerging category refinement. Other methods of data collection included observation and field notes. Analytical tools such as red flags, the seesaw technique, and memos were also used. Additionally, specific observational techniques were applied to enhance and confirm the information obtained through interviews, thereby strengthening the dataset. Observations were made as guided by interaction scripts for mother/father/child triads regarding parenting. These observations were based on Corbin and Strauss’s methodology (12); observation is not secondary; it serves as a basis for creating a theory that is “grounded” in the real world’s intricacies. Researchers achieve a comprehensive understanding of the social phenomenon by integrating observations with interviews (15).

Data analysis

In conducting data analysis, this study adhered to Corbin and Strauss’s (2015) five-step approach. Initially, open coding was used to explore the ideas. Following this, the study delved into the specifics of these ideas by examining their characteristics—the next step involved analyzing the data to understand the context. Subsequently, the process was incorporated into the analysis. Finally, all the categories were consolidated.

The research involved meticulously listening to interview recordings multiple times and transcribing them word-for-word in Microsoft Word. The researchers reviewed the transcriptions to ensure accuracy. For data analysis, the MAXQDA 2010 software was used. Researchers examined the words and sentences, assigning codes to represent their meanings, thus providing explanations. Afterward, the study identified the characteristics of the categories and highlighted parents’ primary concerns.

A matrix was created to analyze the contextual data. To integrate the process into the data analysis, researchers posed questions such as: How do parents address the main issue, like the challenges of self-care? The researchers then composed a narrative and developed diagrams to merge the categories and identify the core category.

Data trustworthiness

Checking that qualitative research is of good quality is crucial. It ensures the results present what people experienced in the study. This study applied ten of Corbin and Strauss’s (2015) rules to demonstrate the accuracy of these data and their compliance with scientific criteria.

1. **Relevance:** The results present what the participants reported. The researchers maintained contact with all its members to discuss the results and made amendments based on their input.
2. **Applicability or Usefulness:** The research is to put forth info that may use to form policy, change practices, and support parents. We spoke of how well the results do that in policy, practice, research, and education. Parents of children with developmental brain issues shared their input.
3. **Conceptuality:** We must present results in clear themes that all can understand. What makes the results valuable is their relevance. We developed ideas by examining their features and incorporating input from professors and qualitative research experts.
4. **Context of ideas:** The findings will not be complete without considering the context, because the reader of this study will need contextual information for understanding the events presented in the data. Therefore, during data collection, an attempt was made to act with the event’s context in mind. Furthermore, participants were asked in the interviews about the context in which parental adjustment occurs.
5. **Logic:** Are the ideas that have been presented logical and coherent? Are the findings plausible? Are there holes or connections overlooked in the argument in this study that would confuse the reader and make them feel as if something is wrong? Is the methodology written clearly and concisely so that the reader will have a clear understanding of how the data was collected and analyzed? To address these issues, the opinions of the advisor and supervisor, along with those of two people familiar with qualitative research, were solicited and considered.
6. **Depth:** Ideas bring coherence to the study, providing a common language that researcher should employ. By conducting a thorough interview and concentrating on

descriptive details, the researcher sought to tease out depth through analysis of the data, as well as through probing questions, reminders, the seesaw technique, and red flags.

7. **Diversity:** Is there variation in the findings? Are there any instances that represent an exception to the overall pattern of findings and indicate variation in dimensions or characteristics? Therefore, the researcher has worked to select participants in a way that achieves some appropriate diversity in their gender and the duration of child care they have provided. Furthermore, in subsequent phases of the research project, consideration is likely to focus on factors such as the child's gender in future plans.

8. **Creativity:** Are the findings presented innovatively and originally? Does the study have any new findings to share, or is it presenting old findings in a new presentation? To achieve this goal, the researcher attempted to develop a more accurate and deeper understanding of the subject through lengthening the interviews and data collection and writing up the parents' experiences in new and imaginative ways.

Sensitivity: Is the researcher sensitive to the participants and to the findings? Does the research guide the analysis, or is the researcher forced to impose assumptions and ideas on the data in advance? To address this issue, the researcher tried to put aside any possible bias and to develop sensitivity. A literature review of previous studies related to the subject of study was provided to give the researcher a general perspective before beginning data collection and analysis. 10. Citing reminders: To address these issues, reminders were determined to be crucial for all procedures. The researcher began writing memos from the very first interview. In each interview, the researcher read the transcript two or three times and wrote memos for himself. At the same time, during the process of constant comparative analysis, he also wrote memos for his own development and tried to interject memos into successive interviews (12).

Results

This study aimed to investigate the adaptation process of parents of children with NDDs. Based on the findings, the participants' mean age was 35.12 ± 10.43 years. Furthermore, 49 and75% of the individuals had a primary education, 75% had two or more children. In addition, more details are presented in Table 1. Figure 1 summarizes the main categories of this study.

As a result of the interview with parents, 1,327 initial codes were obtained; after removing duplicates, 529 remained. After combining and classifying the initial codes, they were summarized into six main categories, 12 subcategories, and 38 undercategories. These categories and subcategories are detailed in Table 2.

First main Category "Perceived Parental Crisis in the Diagnostic-Treatment Process": This main category is derived from the combination of subcategories of parental unrest in facing the treatment process with subcategories (parental denial of accepting the diagnosis of the affected child, parental confusion in following the treatment plan of the affected child, helplessness and inability of parents) and parental welfare challenges with subcategories (deprivation of recreation and financial problems arising from treatment).

Participant said: "I just can't believe this is happening. I feel lost and don't know how to help my child while managing everything else." (p17)

Second main Category Two "Duality of Parental Grief": This main category is derived from the combination of subcategories of negative emotions of parents due to the child's illness with subcategories (unpleasant feelings of parents regarding the affected child, parents' anxiety about the child's future, mother's concern about harming herself and others, parents' distress from the physical and psychological problems of the affected child) and negative family emotions due to social stigma (mother's anxiety following labeling the child, isolation of the affected child due to the negative perceptions of others, and parents' suffering from the negative reactions of others regarding the affected child).

Participant said: "Every time I see someone look at my child differently, it breaks my heart. I worry about what the future holds for us." (p27)

Third main Category "Hierarchical Support": This main category is derived from the combination of subcategories of family support networks with subcategories (healthy child supporting the affected child, supportive role of the spouse, relative indifference of the father to the treatment needs of the child, and support from relatives) and receiving practical advice from therapeutic caregiving towards empowering the family (guidance from educational staff to parents, ways to empower the affected child by educational staff, and assistance from the treatment team).

Participant said: "My spouse has been my rock, but sometimes I feel like I'm carrying the weight of the world alone. The support from our family has been a lifeline." (p6)

The fourth main category "Organizing Financial-Incentive Resources": This main category is derived from the combination of the subcategory of life financial management with the subcategories (changing the parents' career plans due to the affected child and ways to cover treatment costs) and methods of achieving comfort with the subcategories (adherence to religious beliefs as a factor in maintaining the mother's calmness and various ways for parents to recharge).

Participant said: "Finding ways to manage our finances has been crucial. I had to change my job to ensure I could be there for my child, and it's been a struggle, but we make it work." (p25)

The fifth main category "Conscious Strategies of Parents": This main category, referring to the role of adopting coping approaches in the parents of these children, is derived from the combination of subcategories of parents' diligent efforts to follow the treatment process (parents' attention and care after entrusting the child to a care center, parents' follow-up for the continuation of treatment actions, ways to ensure clarity in the child's diagnosis, the father's attention to the child's treatment care plan, and parents' attention to improving the educational situation).

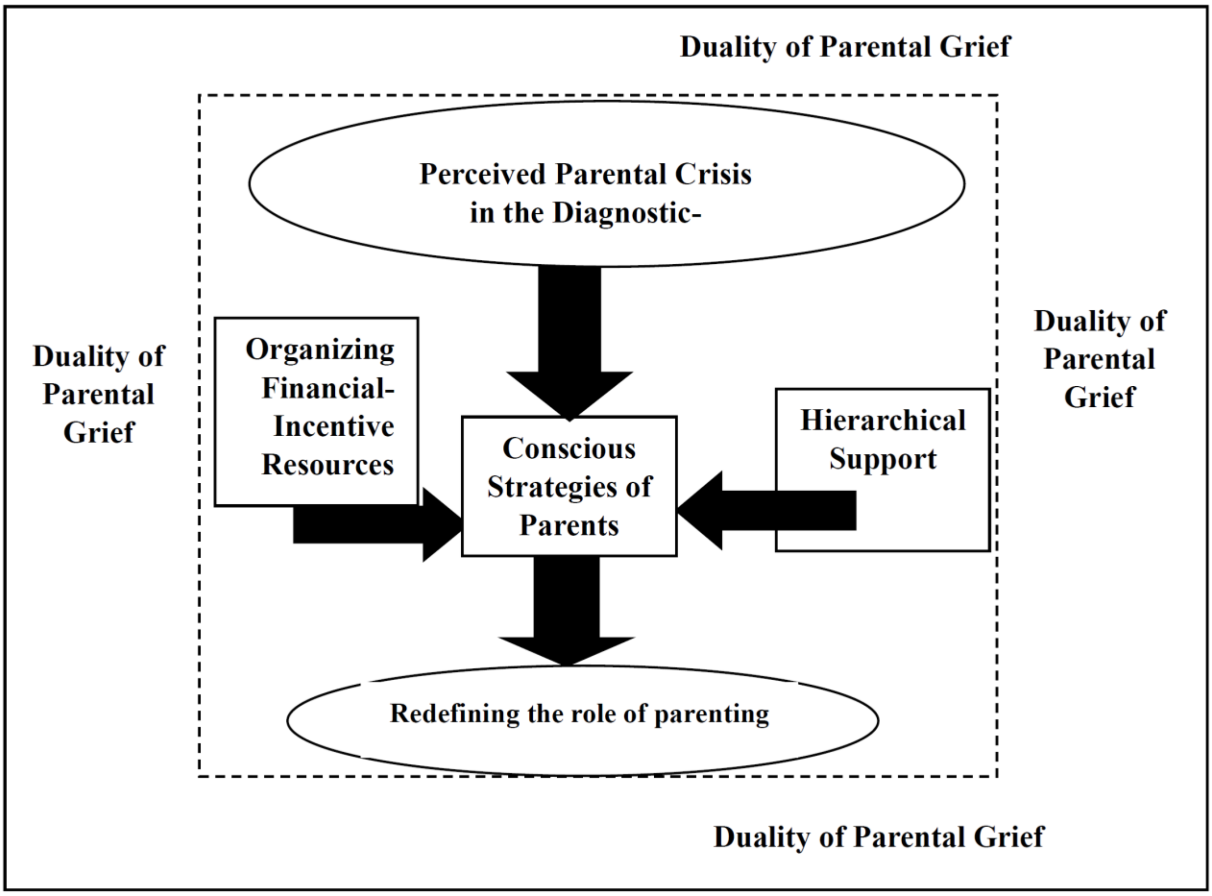

Figure1. Theory of Contingent parental metamorphosis

Participant said: "I constantly check in with the care team and make sure I understand every step of my child's treatment. It's my responsibility to stay informed and involved." (p26)

The sixth main category "Commitment to Parental Adherence": This main category, redefining the parental role according to circumstances, is derived from the combination of subcategories of parental requirements with subcategories (being a mother and being a father), parents' unique attention to the affected child (the mother's attention to the child's differences, parents' neglect of other children, the affected child's situation being the family's top priority, and parents' attention to the acceptance of the affected child in society).

Participant said: "My focus has shifted entirely to my child with special needs. I sometimes feel guilty about not being there for my other kids, but their sibling needs me more right now." (p12)

Discussion

The anxiety associated with being a parent of a child with NDDs is extensively cataloged. Alicka et al. describe the experiences of parents of children diagnosed with ASD as demonstrating significantly greater levels of stress, anxiety, and depression than parents of typically developing children (16). These findings reflect the experiences captured in the current theme in which parental anxiety is a central feature of the perceived crisis. Ashworth et al. found that while, parent stress levels may be similar across different NDDs, the sources of stress vary across each NDD, potentially highlighting contextual and individual variables (17).

The emotional responses of denial and confusion are also noted in the literature; for example, the study by Picione et al. described how parents of children with ASD often demonstrated a crisis response, which could include confusing treatment options (e.g., steps to adhering to medical advice) (18). This study aligns with the current theme where parental denial of the diagnosis and confusion with treatment plans, are presented as significant hardships. The confusion related to parental emotional turmoil, such as denial, is also problematic for clear communication with healthcare providers, which exacerbates the crisis.

Parental feelings of helplessness and welfare challenges are an essential aspect of the parental experience during treatment. According to Irshad et al., caregivers for children with NDDs reported significantly higher levels of depression, anxiety, and stress than caregivers for neurocognitive (19). These unique burdens associated with NDDs support that parental helplessness and financial hardships, which were described in the current theme, will create a broader crisis for families.

While themes of anxiety, uncertainty, confusion, helplessness, and welfare challenges are prevalent, it is crucial to recognize that children with different NDDs experience these feelings to varying degrees. For example, Operto et al. have reported that parental-reported stress varies for different NDDs with the same child, indicating that a specific diagnosis will elicit varying emotional responses (20). This suggests the need for differentiated interventions given the numerous challenges associated with each disorder.

The emotional burden of parents responding to NDDs is well understood. Researchers have found that parents often feel an array of unpleasant emotions—grief, anxiety, and frustration, again especially concerning their child's future and well-being (21). This is true for the current theme, in which parents expressed their unpleasant feelings about their affected child, and also worries about self-harm or harm to others. A systematic review conducted by The Association (2018) demonstrated that parents of children with ASD experience significant psychological distress, sometimes exacerbated by the severity of their child's behavioral issues (22).

The effect of social stigma on parents of children with NDDs is an important dimension of the Parental grief bias. Research has found that parents often endure vicarious stigma that can result in feelings of loneliness and anxiety, alongside the stigma towards their children from society's labeling (23). The issues of labelling and negative reactions from others are consistent with the current theme, further exacerbating the parents' emotional impact. Chukwunonso (2024) further points to the relationship between both self-stigma and vicarious stigma with the occurrence of depression amongst parent participants, underscoring the need for public education to ameliorate these effects (24).

The emotional challenges experienced by parents appear to be aggravated by family dynamics and the absence of social support. Currie et al. present how parents of children with rare NDDs are socially isolated and misunderstood, which can intensify their emotional challenges (25). This fits with the current theme, noting that the negative emotions of parents are seldom directed just towards their child, but begin with the larger social context, including stigma and isolation.

Although the current theme focuses on the emotional and social challenges of parents, the literature indicates that experiences vary depending on the NDDs. For example, Efe et al. discusses how parents of children with ASD experienced particular internalized stigma and family dysfunction, contributing to ongoing anxiety and depression, (26). These findings show that while parents across different NDDs share some commonalities in their experiences, they also face unique and complex challenges, thereby requiring different support strategies.

The importance of a strong family support network is well established in the literature. Studies show that families with a strong support network can better cope with the challenges of NDDs (27). This supports the current theme by identifying family members, healthy siblings, and spouses as valuable sources of emotional and practical support. Razjouyan et al. found that many siblings of children with disabilities play a supportive role, which may ultimately strengthen family resilience (28). In contrast, the current theme also carries the potential for indifference (i.e., dad) that can obstruct family dynamics and support systems.

The supportive role of spouses can be crucial in managing the complications of raising a child with NDDs. Couples communicated well with each other, correlated with each spouse contributing to and sharing the support role. They reported a better experience, meaning less stress and greater relationship satisfaction (29). For support from the spouse, this aligns with the current theme, considering the spouse's supportive role as a key feature of sequential support. On the other hand, the literature reports that caregiving stress can lead to marital discord, particularly if one spouse shows indifference toward the child's medical needs (30).

Another significant factor within the sequential support theme is the role of therapeutic care teams as a source of practical advice and support. Evidence shows that parent perceptions of productive communication and guidance from health professionals are associated with increased parental confidence and have the potential to empower families to advocate for their child's needs (31). This highlights yet another aspect of the current theme: The importance of receiving practical advice from educational and treatment professionals. In this context, Patel et al. explored families' empowerment when involved in the process with educational staff and whether that involvement affected parental anxiety. Patel (2022) found that families who had relationships with educational staff reported feeling more empowered and capable of supporting their child's development (32). This raises the need for families and care teams to collaborate and build relationships.

This theme focuses on the importance of and relationship between family support and professional support; however, the effectiveness of both types of support will vary depending on each family's situation; one family's strengths may be another family's challenges. For example, Lee et al. conducted interviews to investigate parental beliefs and understanding of their child's development. Their findings revealed that families faced different levels of financial burden or lacked social support networks reported higher levels of anxiety, stress, and poorer outcomes for their children (33). While sequential support is important, its potential impact may be shaped by families' socio-economic circumstances.

The financial burden on the families of children with NDD has been well documented. For example, one study showed that middle-class parents experienced greater stress due to financial issues than parents from other socioeconomic levels, suggesting that financial resources affect parental stress (34). This supports the work of Jones et al., who emphasize financial management as an essential aspect of coping with developmental disabilities (35). Researchers have noted that financial stress worsens parental stress, which in turn decreases quality of life (36).

When considering coping strategies, parents engage in various forms of coping with some literature suggesting a strength-based approach, which considers the assets of family and social support (37). This stands in contrast to older literature that focuses on deficits and stressors. For example, Judge et al. indicated that social support was a positive indicator of family strengths, providing context suggesting that parents were able to manage their stress better through abilities beyond finance. Importantly, Wong et al. indicated that other parents who are going through similar experiences provide a vital source of support to help parents manage their issues (38).

Conversely, other research studies have shown that maladaptive coping styles, such as self-blame and wishful thinking, can sometimes be negatively correlated with family functioning (39). This presents a key difference in the literature: While some studies underscore the positive influence of coping, others point to the significant negative influences of ineffective coping strategies. The dichotomy between adaptive and maladaptive coping styles suggests that an intervention would be beneficial for promoting positive coping strategies and remediating maladaptive one.

The literature also shows some convergence between parental stress and quality of life. Specifically, the literature notes that parents of children with NDDs experience increased parental stress and decreased quality of life compared to parents of typically developing children (40). For example, families with children with ASD experienced more parental stress, as the severity of the autistic condition worsens (41). This suggests that with increased funding and social support, the quality of life would be significantly improved for these families.

Several significant themes regarding the significance of ACE in caring for children with NDDs were continuously mentioned in the literature. For example, Datta et al. note that improved outcomes from treatment are evident when parents are engaged and actively participate in interventions for their children diagnosed with ASD (42). This relates to the previous category of the concept of "intentional ACE," in which family members may be involved in caring for their children diagnosed with ASD by intentionally carrying out the treatment plan as prescribed and sustaining collaborative care. In addition, Ashworth et al. noted that families are very stressed, and that stressors varied across different NDDs, with parental engagement contributing to stress and interactional family factors both positively and negatively (43). It is through the complex engagement and activities of parents — collaboration, coordination, communication with service providers, and mindful advocacy for their children —that families address the task of challenge.

The literature discusses a variety of coping skills used by parents. For example, in analyzing mindful parenting from the review of the literature, Maharani et al. states that mindful parenting improves the quality of life for parents because parents who parent with mindfulness parents or care for children with NDDs have lower levels of stress in parenting and greater levels of satisfaction in their role as the caregiver (44). This idea also fits well into the subcategory of “thinking about care,” in which parents are intentionally attempting to create a normal, safe, and well-resourced supportive home environment for their children. On the other hand, Craig et al. show that numerous parents are under considerable strain from the multitude of responsibilities that come with caregiving, often leading them to adopt maladaptive coping mechanisms. This Bowenian dichotomy raises the importance of interventions that promote effective coping strategies in the previous category.

The state of the home environment is another important element of children's well-being with NDDs. Shiozu et al. recognize the importance of supportive contexts that, for example, support participation in daily for individuals with NDDs (45). This is again consistent with the previous category’s perspectives on the child’s safety and the physiological dimension of needs. From this perspective, it can be inferred that parental stress and daily living management are directly correlated with the quality of life of their children (46), as evidenced by balancing of a household and controlling aberrant behaviors. The implications of this process mean that the parent will need to manage their household activities to wind down and focus on maintaining their mental health, as well as that of their children.

The literature demonstrates how parents of children with NDDs frequently undergo a considerable change in their roles and must redefine their roles and responsibilities, as a result, (47) indicating that parental stress was associated with treatment adherence. As parents invest (and likely become more devoted) to their child’s care, they reported more stress. This is parallel with the current category in terms of the parent providing “special” attention to their child with NDDs, often at the obvious expense of other children and parents’ health and well-being, followed by the parent putting the affected child first (48).

The data from various studies illustrate that a heightened focus on their child with NDDs led to neglect and limitation of other relationships within the family. The example used in the Ashworth study is that parents frequently report being overwhelmed by caregiving responsibilities. Therefore, show less attentiveness to other children/family members. Similarly, this theme extended to the current category, since the condition of the affected child was described as the family’s first priority. The emotional burdens of prioritizing child welfare can exacerbate parental stress and feelings of isolation, as parents may believe they can no longer share their emotional burdens with others (49).

Another significant aspect of parental adherence is the acceptance of the child with NDDs in society. In the literature, parents struggle with the perceptions and stigmas surrounding their child’s condition. As Issaka describes, during our panel, parents have to deal with stigma and acceptance, advocating for their child while also facing their own emotional responses to stigma and acceptance from society (18). This concern about the challenges of societal acceptance by parents is another fit for the category of parental priorities and an acknowledgement that both the child’s and the family’s well-being need to be accepted and included in society.

Theoretical, clinical, and policy implications

The overarching theory of contingency transformation provides a more complete understanding of parent adaptation processes related to children with NDDs. Theoretically, this perspective has the potential to explain how the relationship among parents, stress, and coping influences parental adaptive processes. In theory, the process of contingency transformation happens in stages/processes where each parent and child are continuously working things out in relation to the needs of the children. From a clinical perspective, there is an evident clinical importance. Clinicians can use the contingency transformation theory as a framework to develop further interventions that address the unique issues facing parents. Realizing that adapting takes time and involves a process allows clinicians to help parents understand that they will use strategies that support them and their child’s needs. At the very least, it allows clinicians to develop interventions that acknowledge this process and enhance parental adaptive strategies, as well as the family’s well-being. From a policy perspective, the obtained findings underscore the need for well-rounded, robust support systems to meet these families’ needs. Policymakers need to consider supporting programs that provide resources to support families in all the areas that they require as parents in adapting to NDDs.

Limitations

Despite its contributions, the contingency transformation theory also has its limitations. It is primarily based on qualitative data, which may restrict the generalizability of the results. Qualitative information is rich in contextual depth but remains a single lens through which various groups can be studied; it does not capture the full range of lived experiences of various populations. Contingency transformation theory does not necessarily acknowledge the relevance of cultural differences in parenting practices and notions of NDDs to the adaptation process. In another way, parents are adapting to an ongoing process of changing situations and realities; for this reason, the theory may require continual revision as new barriers or opportunities emerge within society. This is particularly essential to account for, given how rapidly diagnostic definitions and treatment options for NDDs are evolving. Thus, the research on the theory needs to continue to address new problems families face.

Future research

Future studies should aim to broaden the study of contingency transformation theory by examining it across contexts and with varied family structures. A longitudinal approach would also provide insight into the course of parental adaptation over time, specifically given changes in the child's condition or family structure. In addition, studies should explore the function of social support networks in parental adaptation. More research is needed on how community support, peer support, and professional readiness influence adaptation, to facilitate the development of better systems of support for families, with a child with NDDs.

In Conclusion

To conclude, the contingency transformation theory provides a valuable framework for understanding the adaptation processes of parents of children with NDDs. By demonstrating the dynamic relationships among parents' parenting roles, perceived parental stressors, and coping methods, this theory provides beneficial information with significance across theoretical, clinical, and policy perspectives. While there are some limitations in its current application, the potential for future studies to expand and refine the theory is immense. A more significant understanding of parents and the ways they adapt to caring for children with NDDs would raise awareness of parental needs, which could help provide systems of support, raising the overall quality of parental and child life.

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Authors' Contribution

Conceptualization, F.T and Z.S; methodology, F.T and H.M; validation, Z.S and F.D; writing—original draft preparation, H.M, Z.S and F.T; writing, review and editing, H.M, F.T and Z.S; supervision, Z.S. All authors have read and agreed to the published version of the manuscript.

Conflict of Interest

Not available.

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